FILE: 2024/4875

DEPARTMENT OF BIODIVERSITY, CONSERVATION AND ATTRACTIONS REPORT

PROPOSAL	Redevelopment of Pier 21 Marina - removal of seven jetties and replacement with six new floating jetties with wave attenuation, public boardwalk and community use jetty
LOCATION	River reserve - Lot 300 on Plan 47450 (Reserve 48325) and Regional Open Space – Lot 505 and 506 on Plan 54517 (Reserve 49288) and Lot 431 on Plan 215710 (Reserve 43707)
COST	$10,000,000
APPLICANT	Pier 21 Marina Pty Ltd
LANDOWNER	Swan River Trust and City of Fremantle
LOCAL GOVERNMENT	City of Fremantle
MRS CLASSIFICATION	Waterways; Regional Open Space
DECISION TYPE	Part 5, *Swan and Canning Rivers Management Act 2006*, Ministerial Determination
ATTACHMENTS	1. Location Map (one page) 2. Amended Development Proposal: a) Amended plans and application (eighteen pages) b) Wake Wave Reflection Report (thirteen pages) c) Visual Impact Assessment (forty-six pages) d) Parking Assessment (nine pages) 3. Initial Development Proposal (nineteen pages) 4. External referral responses: a) City of Fremantle (eleven pages) b) Department of Water and Environmental Regulation – Contaminated Sites (two pages) c) Department of Transport (Now referred to as Department of Transport and Major Infrastructure) (seven pages) d) Department of Planning Lands and Heritage – Aboriginal Heritage (two pages) e) Department of Planning Lands and Heritage – Land Use Planning (two pages) 5 Summary of Public Submissions (ten pages)
RECOMMENDATION	**APPROVAL WITH CONDITIONS**

1. INTRODUCTION

1.1 The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application from Pier 21 Marina (the Marina), for redevelopment of the Marina facility at 3 John Street, North Fremantle (**Figure 1** and **Attachment 1**).

1.2 The proposal includes the staged removal of all seven existing jetties and replacement with six new floating jetties equipped with wave attenuators, finger jetties, a public boardwalk and a community use jetty at Portside Park. The proposal reduces the

number of land-to-water crossovers from seven to three which will allow for landscaping along the riverbank where the crossovers were (**Figure 2** and **Attachment 2a**).

1.3 The initial proposal was received in October 2024 (**Attachment 3**). In response to advice from DBCA, the City of Fremantle, other relevant stakeholders and the community, the applicant has prepared amended plans and provided additional information to support the proposal. Amended plans were received on 22 May 2025.

Figure 1: Pier 21 Marina and Jetty Portside. Development control area shown in blue.

1.4 The works are within the Swan River, River reserve Lot 300 on Plan 47450, which is reserved for Waterways under the Metropolitan Region Scheme (MRS) and is vested with the Swan River Trust. Works involving removal or replacement of the crossovers will impact a portion of the Regional Open Space (ROS) reserve adjacent (Lot 505 and 506 on Plan 54517 and Lot 431 on Plan 215710). These lots are under the care, control and management of the City of Fremantle.

1.5 The proposed works include the following:

- The staged removal of seven aging jetties A, B, C, D, E, F and G along with 495 piles.
- The reconstruction of six new floating pontoon jetties with 182 new steel piles with HDPE sleeves and T-heads with wave attenuation ('new' jetties A, B, C, D, E and F).
- Bench seats to T-heads C, D, E and F.
- Ladders and life rings to each T-head.
- Construction of a 160m long, 2.5m wide floating public access on water boardwalk connecting new jetties C, D, E and F.
- Installation of four sets of three floating docks and provision for the installation of further floating docks if required.

- Provision of 174 boat pens of varying sizes (including 14 Jet Ski berths).
- Security access gates from the boardwalk to individual jetties which will remain unlocked and pinned open during daylight hours
- Landscaping and reinstatement of the riverbank where redundant crossovers have been removed.
- Universal access kayak launch and swim ladder for improved access to the water between new Jetty B and C.
- A public vessel tie-up adjacent the foreshore on new Jetty C.
- Construction of a 15m long, 3m wide community use jetty at Portside Park for fishing and public pick-up and drop-off.
- Public swimming platform on the boardwalk, between jetties E and F for users of the beach area at the southern end of the Marina.

Figure 2: Pier 21 Marina - proposed new layout

1.6 The current River reserve lease for the Marina consists of two separate areas with a total size of 27,500m^2. The Marina recently acquired Jetty Portside, located at the northern end of the Marina. This adds a further 2,240m^2, taking the total existing lease area to 29,740m^2 (**Figure 5**).

1.7 Proposed changes to the lease area are to provide for expansion of the jetties into the river and the retraction of the lease area at the south and north of the development. The proposal involves the consolidation of the leases into a single new lease with an area of 33,485m^2.

1.8 The proposed development is entirely within the Swan Canning development control area and therefore requires approval from the Minister for the Environment in accordance with Part 5 of the *Swan and Canning Rivers Management Act 2006* (SCRM Act).

1.9 This draft report has been prepared in accordance with section 75(2) of the SCRM Act.

2. CONSULTATION

2.1 The initial proposal was received in October 2024. In accordance with section 73 of the SCRM Act, the initial application was advertised on the DBCA website for a period of 42 days commencing on 13 November 2024. During this period, eight submissions were received. Additional submissions were received after the closing date. All submissions received prior to 19 May 2025 have been considered and are summarised in **Attachment 5**.

2.2 Since the initial plans were submitted, DBCA has met with the City of Fremantle (the City), the Department of Transport and Major Infrastructure (DTMI), and with the applicant on a number of occasions. The applicant advises that it has also separately engaged with representatives of the adjacent apartments (The Moorings), members of local community groups and officers of the City and the DTMI.

2.3 As a result of additional consultation and in response to public submissions and advice received from relevant agencies including the City, the applicant has prepared amended plans and information (**Attachment 2a**).

City of Fremantle

2.4 When consulted about the initial proposal, the City provided the following advice:

- The scale of the proposal may have associated visual and amenity impacts.
- The waterfront boardwalk offers a public benefit however it may diminish the natural connection of the foreshore to the river for the general public and may negatively affect the swimming area near John Street.
- The northern landing of the boardwalk does not connect to a footpath for accessibility. Its placement disconnects the area from the river diminishing public access to this amenity.
- Access to the water is recommended following removal of Jetty A (Jetty Portside), rather than revetment.
- Further information is required to demonstrate that the development will not result in additional parking demands in the area.
- A footpath to connect the southern access to Gilbert Fraser should be provided.

2.5 The City's initial comments are provided in **Attachment 4a**.

2.6 The City provided updated advice on the amended plans on 5 June 2025 (**Attachment 4a)**. The City advised it is generally supportive of the updated proposal and considers that the amended proposal addresses the concerns raised in earlier advice. Other comments raised are as follows:

- The City does not support any reduction in parking availability for the Marina. DBCA should ensure that a suitable arrangement is in place to secure the existing 48 bays for the Marina.
- Dilapidation reports should be required for existing features such as river rock walls, footpaths, vegetation, private property walls and irrigation systems to document existing conditions and provide a reference in case of any damage.
- The small new jetty shown on the plans at Portside Park should be a community asset for fishing, swimming and connection to the river, and should be installed at the cost of the Marina.

- The City is willing to explore installation of a swimming enclosure at Portside Park, however this will require community consultation.
- The City acknowledges the need for public realm improvements, however the Marina will need to engage with the City. Any works in these areas will require a City-led community engagement process.

Department of Water and Environmental Regulation – Contaminated Sites Branch

2.7 The Department of Water and Environmental Regulation (DWER) – Contaminated Sites advises that part of Lot 300 on Deposited Plan 47450 was classified under the *Contaminated Sites Act 2003* as possibly contaminated – investigation required, on 27 October 2010. The classification was based on sediment investigations undertaken in 2010. The investigations found that marine antifouling agents (tributyltin) and metals were present in sediments at concentrations exceeding the relevant ecological assessment criteria. Hydrocarbons were also found to be present in sediments below the relevant assessment criteria.

2.8 Despite this, as there is no change in land use proposed for the site, DWER has no objection to the proposal and does not recommend any conditions of approval. DWER advises that risks associated with the potential disturbance of impacted sediment and soils during development works, can be managed through the preparation and implementation of an appropriate management plan to limit the disturbance of sediment and potential impacts to the river, and health and safety measures for potential exposure to potentially impacted soil and sediment.

2.9 DWER also recommends standard advice regarding the management of works in areas identified as having a high to moderate risk of acid sulfate soils occurring within 3m of the natural soil surface.

2.10 DWER – Contaminated Sites advice is included in **Attachment 4b**.

Department of Transport and Major Infrastructure – Navigational Safety

2.11 DTMI reviewed the initial proposal and raised the following issues:

- The pinch point at the T-Head of each fairway does not meet the minimum requirements of Australian Standard AS3962.
- Dimensions of finger jetties and mooring piles to be shown on plans.
- Some of the inner pens do not have access to a finger jetty.
- Wave attenuation devices on the jetty heads need to dissipate the wash created from passing traffic rather than bouncing back and creating turbulent water for all waterway users including paddle craft.
- Jetties C, D and E protrude into what is now part of the navigable channel and reduce the ability to see the next Navigational Marker 862. Navigational Marker 847 would need to be relocated to allow for a 15m distance between the jetty head and passing vessels.
- From a waterway safety perspective, the remaining channel is wide enough to accommodate two-way vessel traffic in this area at approximately 100m. Consultation with waterway user groups in this area and commercial tour operators is recommended to ensure there are no adverse impacts to waterway use.

2.12 In order to address DTMI's concerns regarding wave reflection, the applicant engaged a maritime and coastal engineer from Burbury Consulting to prepare a review of the expected wave wake reflection for the T-heads of the proposed redevelopment

(**Attachment 2b**). DTMI has reviewed the report and provided DBCA with the following updated advice:

- The installation of wave attenuation floating pontoon jetties will not adversely impact the safe navigation of large, small and passive craft navigating in the area.
- Whilst there is expected to be some level of wake wave reflection back into the navigable channel, modelling suggests that it will be of a similar, if not lesser effect than the current reflection of wake waves when considering the current arrangement of the jetties and large vessels berthed on the outer extremity.
- In a combination of the new attenuators and the reconfiguration of berthing arrangements of the larger vessels to the northern and southernmost fingers, it is expected that the visibility of craft navigating/paddling in close proximity to the T-heads will be improved enabling operators to anticipate the movements of vessel navigation out of the pen sets and subsequently ascertain if a risk of collision exists and respond accordingly.
- The relocation of an existing navigational aid and the positioning of an additional navigational aid will assist in keeping an appropriate separation from vessels transiting in the navigable channel and those entering and exiting the pen sets to assist in safe navigation.
- A formal agreement on the relocation and installation of the navigational aids will be drafted by the DTMI Legal Team for the installation requirements and handover of assets to DTMI for future and ongoing management post install.

2.13 DTMI's initial and updated advice is provided in **Attachment 4c** which includes standard conditions for management of the works. These conditions have been incorporated as recommended advice.

Department of Planning, Lands and Heritage – Aboriginal Heritage

2.14 The Department of Planning Lands and Heritage (DPLH), Aboriginal Heritage advised that a review of the Register of Places and Objects as well as the DPLH Aboriginal Heritage Database concludes the subject area intersects with the actual boundary of Aboriginal Site Swan River (ID 3536). Therefore, approvals will be required under the *Aboriginal Heritage Act 1972* and the applicant should apply for a Section 18 Consent to undertake the works and consult with the Whadjuk Aboriginal Corporation prior to the submission of the application.

2.15 DPLH, Aboriginal Heritage comments are provided in **Attachment 4d**.

Department of Planning, Lands and Heritage – Land Use Planning

2.16 DBCA received submissions on the initial proposal relating to a historic arrangement whereby residents of the Moorings apartments development adjacent (approved in 1998 by the Western Australian Planning Commission) were to be allocated a boat pen in the marina.

2.17 DPLH advised that it was the proponent's intent at the time to market the apartments with an entitlement to a boat pen. A condition of approval was imposed to secure the arrangement to avoid potential parking shortfall in the future.

2.18 DPLH considers that the current parking demands of both the Marina and the apartments can be reconsidered through consultation with the City of Fremantle.

2.19 DPLH, Land Use Planning comments are provided in **Attachment 4e**.

2.20 Further discussion of parking issues can be found in Section 7 of this report.

Public Submissions

2.21 DBCA received a total of eight (8) submissions during the public notification period and accepted an additional thirteen (13) late submissions.

2.22 One submission was in support of the proposal and the rest expressed a range of objections to the proposal. Concerns raised include the potential loss of public access to the river and foreshore areas, safety risks associated with the extension of jetties into the river, possible negative impacts on visual amenity and parking. A summary of the comments raised in the submissions and DBCA's responses are provided at **Attachment 5**.

2.23 The issues raised, such as safety, amenity and public access are further explored in this report.

3. PUBLIC CONSULTATION – SUBMISSIONS ON DRAFT REPORT

3.1 In accordance with the requirements of Section 75 of the SCRM Act, a copy of the draft report and proposed recommendation will be provided to the applicant and the relevant stakeholders being the City of Fremantle and the DTMI. The draft report and amended proposal will also be published on the DBCA website for a period of at least two weeks with an invitation for public submissions.

3.2 To improve public awareness of the proposal and DBCA's draft report, a public notice will be placed at the site during the public submission period. The cost of the notice is to be borne by the applicant.

4. RELEVANT POLICIES AND PLANS

- State Planning Policy 2.10 – Swan-Canning River System (SPP 2.10)
- Draft State Planning Policy 2.9 - Planning for Water (SPP 2.9)
- Corporate Policy Statement No. 42 – Planning for Land Use, Development and Permitting Affecting the Swan Canning Development Control Area (Policy 42)
- Corporate Policy Statement No. 43 – Planning for Marinas, Yacht Clubs and Aquatic Clubs in the Swan Canning Development Control Area (Policy 43)
- Corporate Policy Statement No. 44 – Planning for Jetties in the Swan Canning Development Control Area (Policy 44)
- Corporate Policy Statement No. 46 – Planning for Commercial Operations in the Swan Canning Development Control Area (Policy 46)
- Local Planning Policy Design Guideline 7 (LPP DG7) – North Fremantle Foreshore Plan (City of Fremantle, 2003)
- Draft Jenalup (Blackwall Reach) Locality Plan (2025)

5. ENVIRONMENTAL AND PLANNING CONSIDERATIONS

- River reserve lease extension
- Public access
- Community benefit
- Environmental protection
- Navigational safety for non-motorised vessels
- Landscape character and visual amenity
- Previous related planning approvals
- Car parking
- Heritage
- Use of plastics in the Riverpark
- Contamination and acid sulfate soils

6. BACKGROUND

6.1 Pier 21 Marina is located in the Swan River adjacent to 3 John Street, North Fremantle (**Figure 1**) approximately 600m north of Stirling Bridge. The facility is entirely over water with a small land lease for an office and a 48-bay car park.

6.2 The site was redeveloped from a shipyard (**Figure 3**) to a commercial marina around 2002 with the current River reserve lease commencing in 2006 for a term of 21 years. The Marina presently comprises 176 boat pens – 193 including Jetty Portside – accommodating vessels ranging from seven to 24m in length. The pens are distributed across seven jetties, including two floating and five fixed.

Figure 3 Aerial image from 1989 showing shipyard and slipway

6.3 The current River reserve lease consists of two separate areas totalling 27,500m^2. The owner of the existing Pier 21 Marina recently acquired Jetty Portside, which is a separate lease area located at the northern end of the existing Pier 21 Marina. This acquisition adds a further 2,240m^2, taking the total existing lease area to 29,740m^2. Existing lease areas are depicted in **Figure 4.**

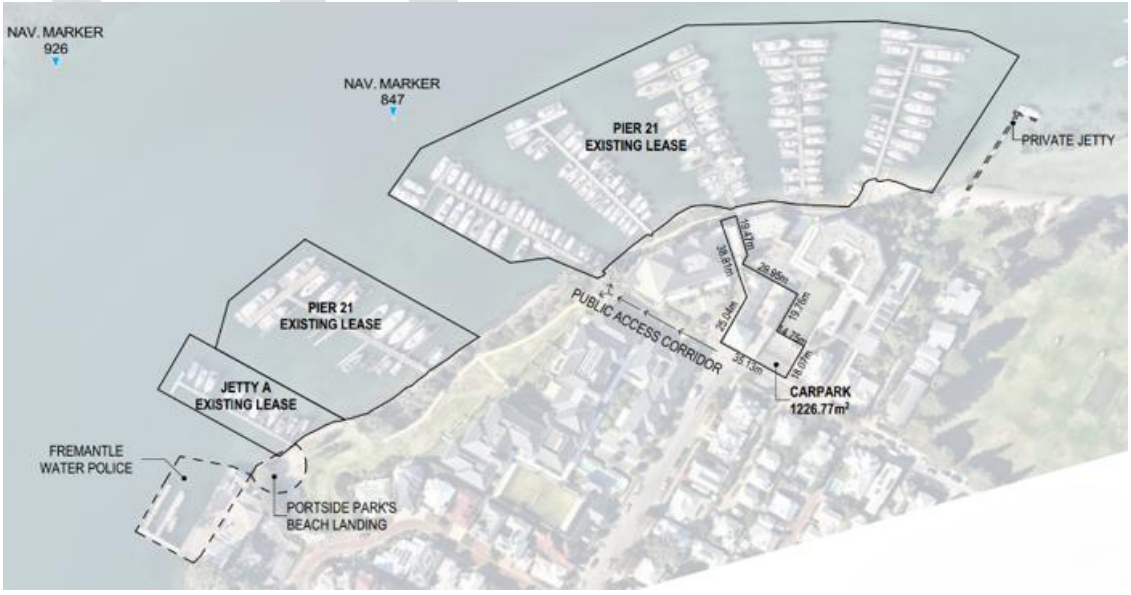


Figure 4 : Existing lease areas

6.4 The Marina leases Lot 51 on Strata Plan 39106, known as 51, 3 John Street, North Fremantle (shown in **Figure 4** for use as office space and car parking. The future use of this space is secured through a lease with option to extend until 2069. No changes are proposed to the existing land lease or works within the land lease area.

6.5 The Marina has recently undergone a change in ownership. In response to the ageing infrastructure, the new owners propose to remove all seven jetties (including Jetty Portside) and construct six new floating jetties in a revised alignment consistent with current Australian Standards (AS 3962:2020 – Marina Design). The proposed new layout requires an increase in River reserve lease area.

6.6 Amended plans were prepared in response to feedback from DBCA, the City and DTMI and to address concerns raised through community consultation. The amendments made to the original proposal are as follows:

- Removal of the boardwalk between Jetty B and C to retain connection to water and reduce length of boardwalk for visual amenity.
- New design for base of new Jetty F to remove gangway and open the beach area for community use.
- Shifting of jetty alignments to improve sightlines for public and local residents.
- Universal access to and along four of the six new jetties and boardwalk.
- Increased fairway widths and entry widths for navigational safety and amenity, and a reduction in the length of the proposed T-Heads.
- Increase in the number of pens for smaller boats.
- Commitment to construct a community use jetty at Portside Park for fishing and pulling up vessels.

7. DISCUSSION

River reserve lease and proposed extension

7.1 Policy 43 requires that new development associated with yacht clubs, marinas and other aquatic-based clubs be located within their existing River reserve lease area. If development is proposed outside of this area, the applicant must apply for a new lease or an amendment to the existing lease. The proposal for an amended lease must maintain and enhance community access and amenity.

7.2 The current Marina lease commenced in 2006 and comprises two separate areas totalling 27,500m^2 (**Figure 4**). These areas are divided by a wider fairway between Jetties B and C. The reason this fairway was excluded from the original lease is unclear. It aligns with the location of a historic shipyard slipway (**Figure 3**). While it may have been intended to provide public access for kayakers or canoeists from the shore to the river, the shoreline is now protected by a significant rock revetment, which limits access to the water for small craft.

7.3 The proposed redevelopment is partly driven by the age and condition of Jetties B to F, which were constructed between the 1960s and 1980s. No significant repairs have been carried out since 2014 other than pile replacement where required, and most of the facility is nearing the end of its useful life.

7.4 The proposed new lease configuration includes the previously excluded 3,811m^2 corridor between Jetties B and C. However, all fairways within the facility will continue to be accessible to the public.

7.5 The proposed new lease boundaries can be seen in **Figure 2** and **Figure 5**. The proposed amendments to the lease boundaries are summarised as follows:

- Removal of 2,240m^2 lease area at the northern end of the site currently assigned to Jetty A and the return of the area to public use.
- Reduction of 2,612m^2 from the lease area at the southern end of the Marina.
- Reduction of 1,173m^2 from the lease area at the northern end of the Marina.
- Inclusion of the 3,811m^2 corridor (the area shown blue in **Figure 5)** in between Jetties B and C.
- Expansion of the lease area into the river by 5,922m^2 (the area shown green in **Figure 5**).

Figure 5 Proposed lease changes

7.6 The initial proposal involved a net lease area increase of 4,514m^2 (15.2%). After consultation with DBCA and consideration of public feedback, the revised proposal now reflects a smaller net increase of 3,746m^2 (12.6%). Notably, if the 3,811m^2 corridor between Jetties B and C had originally been part of the lease area, the revised proposal would amount to a net reduction of 65m^2.

7.7 The proposal allows for redesign of the facility to comply with current Australian Standards (AS 3962:2020 – *Guidelines for design of marinas*). These standards recommend the use of finger jetties for each boat pen which requires longer jetties to accommodate the same or similar numbers of vessels. They also mandate wider fairways and improved vessel maneuvering space to ensure safety and functionality.

7.8 While the proposed lease area involves an increase, the proposal provides for public access through the waterways and provides for an increased length of foreshore that is available for public space at the northern and southern edges of the facility.

Public access

7.9 Policy 42 and SPP2.10 require that proposed development enhances public access to and enjoyment of the river. Applicants must demonstrate that adequate provisions have been made for public access to foreshore areas. Draft SPP2.9 also states that proposals should maintain and enhance public access to and along the rivers and its foreshores.

7.10 The foreshore adjacent to Pier 21 Marina was ceded to the Crown as part of the approval for 'The Moorings' apartment development in 1998. This foreshore land is under the care, control and management of the City, and public access is provided via an existing pathway that extends from Gilbert Fraser Reserve in the south to Portside Park in the north. The pathway is well-used by residents, locals and dog walkers. No changes to this pathway are proposed. Public access along the foreshore will not be affected by the proposal.

7.11 The Marina jetties are currently ungated and are therefore accessible at all times, although signage discourages public access. As part of the proposed redevelopment, the applicant proposes to install lockable gates on each individual jetty to improve security at night for boat pen holders. DBCA acknowledges that security concerns are valid, particularly after dark. In order to ensure continued public access, DBCA will require the gates be pinned open during daylight hours and only be locked at night. The public access boardwalk is to be accessible at all times, day and night. It is recommended that these public access requirements be prescribed through conditions of approval.

7.12 The proposed boardwalk that runs between new Jetties C and F is to be accessible to the public at all times. It is 2.5m wide and provides an alternative overwater experience. The boardwalk runs opposite and parallel to the sandy beach area at the southern end of the Marina which will provide opportunities for people to swim out to the boardwalk. DBCA considers that the boardwalk will enhance public access and enjoyment of the river environment at this location.

7.13 Temporary restriction of public access along the foreshore pathway may be necessary during construction works for safety purposes. Management of public access and safety during works can be addressed through a condition of approval.

Community benefit

7.14 Policy 43 recognises that yacht clubs, marinas and other aquatic clubs have been established on the Swan Canning river system for many years and provide safe (on-water) pen moorings for vessels and opportunities for recreational boating and water sports.

7.15 Section 29 of the SCRM Act requires that approval and renewal of leases must align with the overarching objectives of the Act, which includes maintaining and enhancing community access and amenity. Further, Policy 46 requires that any new or amended leases involving commercial or structural development, must demonstrate a tangible benefit to the community, such as improved access, recreational opportunities or environmental enhancements.

7.16 In response to these requirements, the applicant has committed to a range of measures aimed at delivering improvements to public benefit. The two primary opportunities for maintaining and enhancing community access and amenity are the removal of crossovers associated with Jetty A and Jetty F.

Southern beach area – Jetty F

The removal of the Jetty F crossover will provide a significantly larger beach area at the southern end of the marina immediately adjacent to the parkland (ROS Reserve 49288) creating a more accessible and family-friendly space for swimming and paddling.

The installation of a 'lilypad' and swim ladder on the landward side of the boardwalk will enable people to swim to the boardwalk, climb out and jump off if they choose, providing a safe and engaging play area.

Visualisations of the proposed improvements are provided in **Figure 6**.

Figure 6 Render of proposed Jetty F beach area

Jetty Portside

The removal of Jetty Portside and the relinquishment of its 2,240m^2 lease area presents an opportunity to enhance the community use and enjoyment of the Portside Park area to the north of the Marina. The Marina, in response to feedback from the community, and in consultation with DBCA and the City has agreed to construct a public jetty for community use in the space vacated by Jetty A.

The jetty will be a similar style to the rest of the new marina consisting of a concrete floating platform connected to land via a gangway of sufficient length to achieve the 1:14 grade suitable for universal access. The jetty will allow for fishing and provide a safe location for recreational skippers to pick up and drop off guests. The gangway and platform will together be a minimum of 15m long and 3m wide. The jetty will remain in public ownership and be managed and maintained by the City.

A concept plan for Portside Park has been prepared (**Figure 7**) by the Marina to facilitate discussion with the City and DBCA for other improvements to the foreshore and river edge along this stretch. The proposal is generally supported by DBCA as the concept provided for a relatively low river edge treatment in the form of a stepped and trafficable wall interfacing with the river. In addition, the removal of the scattered rock on the riverbed should be considered. Further coastal engineering investigations will need to be carried out to inform a future concept design.

While the Marina has agreed to construct the jetty and abutment, the ultimate function and improvement of the foreshore and river edge is the responsibility of the City and DBCA. It is expected that the City will conduct its own community consultation process before discussing further improvements with DBCA. A swimming enclosure has been included in the concept design but will require further investigation and funding.

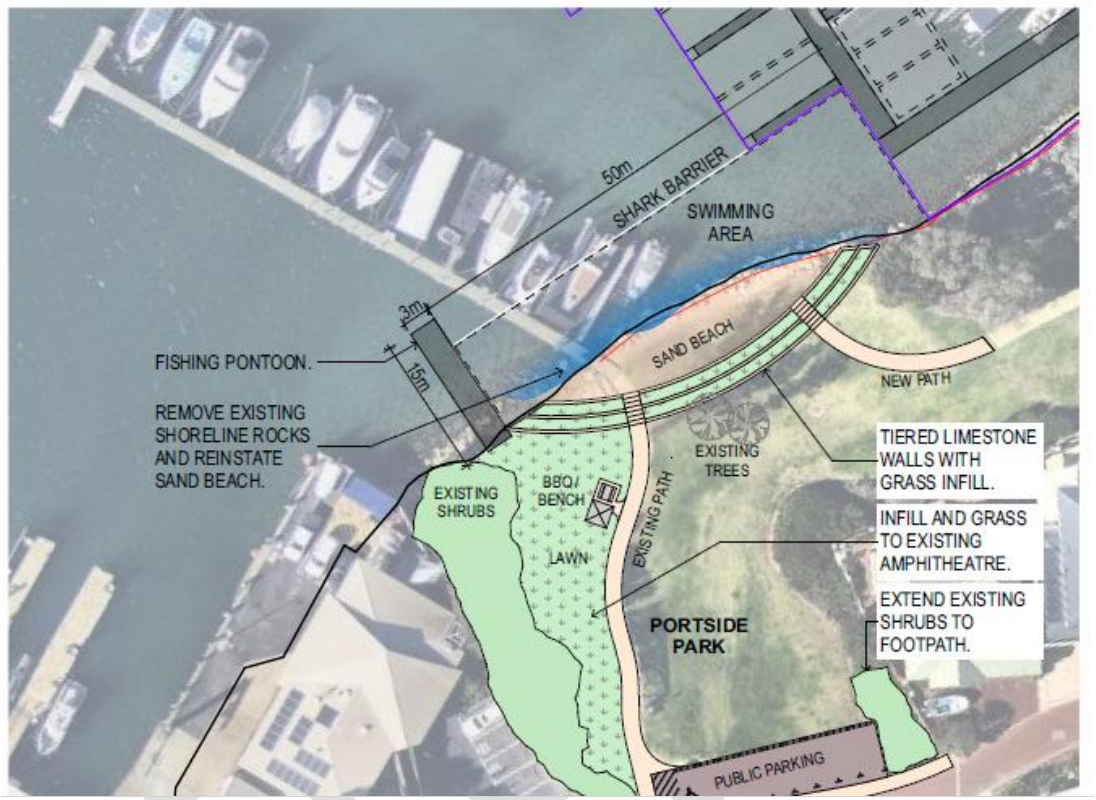


Figure 7 Portside Park - redevelopment concept

7.17 Additional aspects of the proposal considered to provide public benefit include:

- Installation of public seating and landscaping to rehabilitate areas where crossovers are removed.
- Short-term public boat tie-up space at the base of new Jetty C for river users to pick up people or supplies. This is to be accessible at all times.
- Universal accessway at new Jetty C to access the boardwalk and four of the six jetties.
- Lilypad at the base of new Jetty C will allow canoe/kayak launch from a stable platform and allow swimmers and non-motorised watercraft to safely enter the water should they wish to swim or kayak through the fairway.
- A public access boardwalk, accessible at all times, to provide a unique overwater experience.
- All finger jetties will also be publicly accessible during the hours of sunrise and sunset.
- The landings at the end of new jetties C, D, E and F will be publicly accessible during daylight hours for activities such as walking and recreational fishing and will be fitted with public seating.

7.18 Overall, the proposal increases public access to the river, including a 70m reduction in the linear extent of foreshore occupied by infrastructure. The development introduces new recreational amenities and returns riverfront space to public use.

Environmental protection

7.19 Policy 42 aims to ensure that land use and development on and adjacent to the river system maintains and enhances the quality and amenity of the river environment. The proposed demolition and construction works have the potential to impact on the foreshore and waterway, including disturbance to the riverbed, water quality and foreshore degradation, noise impacts on wildlife and disruption to public access and safety.

7.20 The applicant has advised that all construction activities and transportation will be via the river to minimise disturbance to the foreshore and nearby residents. To ensure that all potential environmental impacts are identified and managed appropriately, it is recommended that a construction environmental management plan (CEMP) be required as a condition of approval. The CEMP will be required to address:

- Staged demolition and construction methodology;
- Protection of water quality, including the use of silt curtains to control turbidity;
- Machinery and equipment management (including refuelling protocols);
- Site access and management;
- Public access and safety;
- Waste management and spill response;
- Foreshore protection and rehabilitation works, including protection of all existing vegetation;
- Minimisation of noise and vibration impacts on nearby residents;
- Protection of marine fauna from underwater noise and vibration noise; and
- Monitoring and reporting.

7.21 DBCA expects all marinas and aquatic clubs in the DCA prepare and implement an Environmental Management System (EMS) to manage any potential impacts on the ecological health of the river system. While typically associated with River reserve leases, an EMS may also be required as a condition of development approval.

7.22 The Marina has committed to updating its Environmental Management System (EMS) and all associated documents given the proposed significant redevelopment of its facilities. The revised EMS will be prepared in accordance with the current DBCA guidelines, as recommended through a condition of approval.

7.23 A proposed landscape planting layout has been prepared by the applicant to show the proposed rehabilitation of areas where crossovers are being removed. The plan proposes reinstatement of rock revetment where appropriate, additional infill planting in garden beds, along with a public bench at the old base of Jetty D. The landscape plan provides a species list, but additional detail is required regarding engineering of rock revetments, species types and densities, ongoing maintenance schedules and public safety measures. A final Landscaping Plan is recommended as a condition of approval.

7.24 Given the potential for presence of aquatic fauna beneath the marina, it is important to minimise environmental impacts during the demolition and construction by identification of aquatic fauna and where necessary their safe relocation.

7.25 The Marina has advised that some maintenance dredging of the riverbed will be required for boats to utilise the proposed Marina layout, particularly in shallow areas close to the foreshore. It is anticipated that a future permit application for dredging will be submitted for assessment.

Navigational safety for non-motorised vessels

7.26 The proposed extension of the jetties towards the centre of the river has raised several safety concerns, particularly in relation to use of the area by small non-motorised craft. Submissions have highlighted potential risks associated with navigating around the extended jetties and lease area. The key concerns are as follows:

- Paddle craft will be forced further into the river where tidal flows are stronger and more challenging to navigate.
- Paddle craft will be pushed closer to the navigational channel increasing the risk of conflict with power boats travelling in both directions.
- The proposed T-heads at the ends of the jetties may increase wave reflection which will result in an accumulative impact of boat wash and reflective wave energy.
- This is already the narrowest section of the Swan River. The extension of jetties will make it even narrower for safe navigation.

7.27 With regard to river safety concerns, DBCA refers to the expertise of DTMI's Navigational Safety Unit. DTMI requested the applicant provide a detailed engineering assessment of the potential impacts of the Marina on small vessels and other craft passing by the T-heads. The assessment was undertaken by Burbury Consulting and submitted to DTMI for assessment. DTMI supports the conclusion of the report, that within the navigation channel, the proposed changes to the marina layout would not result in any measurable change to the wave climate or conditions on the seaward side of the Marina (**Attachment 4c**). The Burbury Consulting report can be found at **Attachment 2b**.

Figure 8 River navigation overview

7.28 DTMI further advised DBCA that a navigational buffer zone has been delineated along the periphery of the Marina to facilitate the safe passage of paddle craft. The buffer allows canoeists and kayakers to safely navigate past the Marina without entering the navigational channel. DTMI has agreed to a new location for channel marker 847 which

will keep boating traffic away from the Marina and in the channel. The buffer and proposed positions of navigational markers is shown in **Figure 8.**

7.29 The installation of floating T-heads is expected to improve sightlines for kayakers and other paddle craft as the T-heads will be 0.5m above the water surface and 3.5m wide. This contrasts with the current situation, where boats moored at the ends of jetties can be 6 to 7m high, obstructing sightlines for vessels entering or exiting the Marina. The new design will therefore enable boat operators to more easily see approaching paddle craft.

7.30 To further improve safety, the Marina has proposed the installation of ladders and life rings at the ends of each T-head. In the event of a capsize, the ladders will provide a means to exit the water. Life rings will also be available on the T-heads and can be quickly deployed if required.

Landscape character and visual amenity

7.31 Policy 42 and SPP 2.10 require that development proposals protect and enhance the visual character of the Swan Canning River system. Draft SPP 2.9 further emphasises the importance of maintaining views to and from the river and preserving the natural landscape character and sense of place.

7.32 SPP 2.10 requires that development proposals do not restrict or negatively impact on public views to or from the river, particularly from vantage points and ensure that the essential qualities that give the area its distinctive character are protected and enhanced.

7.33 The development proposes the repositioning and extension of the jetties, as well as a change from fixed to floating pontoons. The new jetties extend 15m further into the river and are wider in some areas than the existing fixed jetties. The proposal also involves a shift towards larger vessel pens (**Table 1**).

Total Berth Sizes			
Berth Size	**Existing**	**Original DA**	**Revised Application**
24m	7	11	**6**
20m	11	2	**10**
18m	16	28	**29**
15m	34	96	**83**
12m	54	20	**20**
10m	34	2	**0**
8m	20	1	**12**
4-7m	17	0	**0**
Jet Skis	0	16	**14**
Totals	**193**	**176**	**174**

Table 1: Existing and proposed berth numbers and sizes

7.34 The proposal has the potential to impact the visual amenity of the area as well as alter existing viewscapes. Although the fundamental character of the views – Swan River, boats and marina jetties – will remain consistent with the existing landscape, a formal visual impact assessment was requested to quantify and assess the visual changes through the provision of photomontages and comparative views from key vantage points.

7.35 The applicant engaged Ecoscape (Australia) Pty Ltd to prepare a Visual Impact Assessment to describe the potential visual impact of the redevelopment of the Pier 21

Marina to public users of the river (**Attachment 2c**). The methodology was based on WAPC's *Visual Landscape Planning in WA* (2007) and assessed visual elements from 3 public viewpoints through a photo montage analysis. The report found that the proposal would involve no significant visual disruption. The landscape character and general view experience would be retained and adverse visual impacts from public viewpoints are unlikely.

7.36 DBCA is satisfied that significant impacts to visual amenity are unlikely and changes would be in line with the character of existing views.

Previous related planning approvals

7.37 In 1998 when the adjacent Moorings apartments development was approved, a condition of approval required boat berths be made available to Moorings apartments residents.

7.38 This proposal does not seek to alter any previous approvals or conditions. To ensure the proposal is not inconsistent with the previous approval for the Moorings, the applicant will be required to demonstrate, through the preparation of an Operations Plan, the procedure by which boat pens will be made available to residents of 'The Moorings' who express interest in accessing a pen.

7.39 The applicant will further be reminded in advice of the requirement to comply with any conditions of previous related planning approvals.

Car parking

7.40 In accordance with Policy 43, proposals for marinas, yacht clubs or other aquatic facilities are required to demonstrate that adequate parking is either currently available or will be provided, and that parking provisions align with the relevant local planning scheme and Australian Standards.

7.41 The Marina holds a lease over Lot 51 on Strata Plan 39106 (51, 3 John Street, North Fremantle) which is used for office space and car parking (**Figure 4**). This lease is secured until 2048 with an option to extend to 2069. The car parking area has 48 bays available solely for use by Marina users. No changes are proposed to the car parking area or the associated lease arrangements. **Condition 14** requires the marina maintains parking for at least 48 off street car bays within the immediate locality for exclusive use by the Marina.

7.42 The proposed redevelopment involves an overall reduction in the number of boat pens from 193 (including Jetty A) to 174. When assessed against the current Australian Standards (AS 3962:2020 – *Guidelines for marina design*) the Marina will have a surplus of four car bays.

7.43 In addition, of the 174 boat pens in the proposed new marina, 10 of those are expected to continue to be leased by residents of the Moorings, and another possible 10 are expected to move their boat from Jetty A into the Marina. Jetty A boat owners are all local residents who would not require parking. Therefore the Marina may have a current further surplus of three car bays, although it is noted this may change over time.

7.44 To demonstrate that the parking provided is adequate for the future redevelopment, the applicant prepared a parking analysis (**Attachment 2d)**. The assessment includes the calculations described above along with anecdotal evidence that even on the busiest boating days of the year, the car parking area of 48 bays has empty car bays.

7.45 To avoid the likelihood of parking by users of the marina within the surrounding streets it is recommended that an operations plan is prepared and implemented at all times by the marina to require that marina users utilise the leased car parking area (refer **Condition 15)**.

7.46 The City of Fremantle advises that it has no objections to the proposal provided there will be no additional parking pressure as a result of the development.

7.47 With the conditions outlined above, and given the reduction in the number of boat pens, and compliance with relevant Australian Standards, DBCA does not expect the redevelopment to result in any increased parking pressure.

Heritage

7.48 Policy 42 states that places of cultural and heritage significance, both Aboriginal and non-Aboriginal, and of natural heritage are to be conserved.

7.49 The proposed works are located within an area identified on the Register of Aboriginal Sites (ID 3536 – Swan River). DBCA supports the recognition and protection of heritage areas, including the Swan Canning river system, which is of important spiritual and cultural significance to Whadjuk Noongar people. Pursuant to the requirements of the *Aboriginal Heritage Act 1972*, these values should be identified and protected prior to the commencement of works and will form part of the advice to the applicant, as well as any advice provided by the DPLH, Aboriginal Heritage Group.

Use of plastics in the Riverpark

7.50 Policy 44 states that applications for jetties need to demonstrate they are minimising and managing effects on the ecological health of the Swan Canning River system. DBCA considers the long-term and cumulative environmental impact of using recycled plastic and other composite plastic materials on the ecological health of the Riverpark.

7.51 The applicant has advised the proposed new jetties are to be constructed of concrete with aluminium frames and HDPE underneath for floatation. The gangways are likely to be timber or fibre-reinforced polymer (FRP) decking. DBCA has requested detailed plans and drawings as a condition of approval to confirm the selected materials. Use of plastic materials should be avoided where possible. In particular, noting the availability of alternative decking materials, use of FRP and other plastic products as decking presents a risk of significant release of plastic products into the waterway.

7.52 **Condition 3** will allow DBCA to obtain details of proposed construction materials and require the applicant demonstrates that any FRP or other plastic products will not contribute particles to the river environment within the proposed lifespan of the structure. Further, the applicant will be required to remove the structure or material prior to it becoming a source of microplastics. The applicant will be required to regularly maintain and monitor the product for degradation and to ensure removal of the product at the time that it shows signs of serious deterioration and provide an annual maintenance and inspection plan that includes ongoing repair or replacement if and as required.

Contamination and acid sulfate soils

7.53 The proposed works are to be undertaken within a high to moderate (Swan River) and moderate to low (public foreshore reserve) acid sulfate soils (ASS) disturbance risk area within 3m of the natural surface. The proposed works will result in minor ground disturbance during the piling works.

7.54 An advice note requested by DWER, Contaminated Sites regarding the risk of disturbing ASS from the proposed works is recommended for inclusion.

8. SWAN RIVER TRUST

8.1 In accordance with section 75(3A) of the SCRM Act, the Swan River Trust considered DBCA's draft report at its meeting of 17 June 2025. The Trust resolved to advise DBCA that it supports the report and recommendation of approval for the Pier 21 Marina redevelopment application, subject to minor amendments to conditions and confirmation from DPLH that the approval pathway is appropriate given the car parking area is located outside of the DCA.

8.2 DBCA has received confirmation from DPLH on this matter, and has also amended the report to address the Trust's comments.

9. CONCLUSION

9.1 The revised proposal involves a 12.6 per cent increase in the River reserve lease area to allow for replacement of ageing infrastructure with modern floating jetties that comply with current Australian Standards, improve navigational safety and provide some additional larger boat pens.

9.2 Potential safety impacts have been addressed through the Wave Wake Reflection Report (Burbury Consulting, 2025) provided, and DTMI confirmation that navigational safety concerns have been addressed. Environmental impacts can be managed through a Construction and Environmental Management Plan and an updated Environmental Management System, ensuring protection of the river environment during and after construction. A traffic and parking assessment confirms that the development meets the requirements of AS 3962:2020, with sufficient parking provided through a long-term lease arrangement.

9.3 The inclusion of a public boardwalk, community use jetty, improved foreshore access, maintenance of public access within and around the facility and universal access features will enhance public access and enjoyment of the river at the location and provide a benefit to the community.

9.4 On balance, the proposal is considered to be consistent with the planning objectives for the Swan Canning DCA and is recommended for approval, subject to conditions.

10. RECOMMENDATION – APPROVAL WITH CONDITIONS

That the Director General of DBCA advises the Minister for the Environment that the proposal (**Attachment 2a-d**) at Pier 21 Marina in the Swan River, Lot 300 on Plan 47450 (Reserve 48325) and Regional Open Space – Lot 505 and 506 on Plan 54517 (Reserve 49288) and Lot 431 on Plan 215710 (Reserve 43707), as described in the application received on 23 October 2024 and amended plans received on 22 May 2025 and 9 July 2025, be approved, subject to the following:

CONDITIONS

1. Approval to implement this decision is valid for three (3) years from the date of this approval. If on-site works have not substantially commenced within this period, a new approval will be required before commencing or completing the development.
2. The applicant shall notify the Department of Biodiversity, Conservation and Attractions of the intended date to commence each stage of works. This notification shall be provided in writing not less than seven (7) days prior to the commencement of each stage of works. (**Advice Note 1**)
3. Prior to the commencement of works, final design plans/engineering drawings and technical specifications, including details of the finishes and materials shall be submitted

to and approved by the Department of Biodiversity, Conservation and Attractions. (**Advice Notes 2** and **3**)

4. All works are to be carried out in accordance with a Construction Environmental Management Plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (**Advice Notes 4 to 7**)
5. Piling operations shall include a soft start-up procedure at the commencement of each piling sequence. (**Advice Note 8 and 9**)
6. Prior to the commencement of works, all significant vegetation in and adjacent to the authorised work site shall be identified and protected by installation of Tree Protection Zones in accordance with Australian Standard AS 4970-2009 - *Protection of trees on development site.*
7. All works are to be undertaken in accordance with a Landscape Plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (**Advice Note 10**)
8. All lighting is to be installed in accordance with a Lighting Plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (**Advice Note 11**)
9. Prior to commencement of use, an Environmental Management System is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions. (**Advice Note 12**)
10. Monitoring and maintenance of the approved structure shall be undertaken in accordance with a Maintenance and Inspection Plan which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of use (**Advice Note 13**).
11. The security gates to all jetties are to remain physically open between sunrise and sunset and all jetties are to be publicly accessible during those times.
12. Appropriate measures are to be taken to ensure no permanent damage to the foreshore, riverbank or waterway (including vegetation and infrastructure) occurs beyond the scope of the authorised works. Should any inadvertent damage occur, the Department of Biodiversity, Conservation and Attractions is to be notified immediately, and the area remediated at the applicant's expense. (**Advice Note 14**)
13. The authorised works shall not prevent public access along the foreshore reserve unless temporary closure is necessary for safety purposes. In the event the path is closed, a clearly signed, safe alternative route shall be provided. (**Advice Note 16**)
14. A minimum of 48 off street car parking bays is to remain available at all times for the life of the development within the immediate locality and allocated specifically for use by patrons of the marina. (**Advice Note 17**)
15. The applicant shall prepare and implement an Operations Plan, which is to be submitted to and approved by the Department of Biodiversity, Conservation and Attractions prior to commencement of works. (**Advice Note 17**).
16. Within 24 months of the commencement of development, the community jetty is to be constructed at Portside Park to the specifications outlined in the Specification Sheet dated 7 July 2025 (JMC Marina Group), to the satisfaction of the Department of Biodiversity, Conservation and Attractions on the advice of the City of Fremantle.
17. A Dilapidation Report specifying which infrastructure on adjoining sites may be adversely affected by the works, is to be prepared at the applicant's expense, to provide a record of the existing condition of the infrastructure. The report is to be prepared to the satisfaction

of the Department of Biodiversity, Conservation and Attractions on the advice of the City of Fremantle (**Advice Note 19**).

ADVICE NOTES

1. Notifications can be emailed to rivers.planning@dbca.wa.gov.au.
2. Regarding **Condition 3**, the final drawings shall include:
   a. site plan showing all dimensions
   b. clarification of proposed materials to be used in the marina
   c. location of piles, jetties and attenuators
   d. detailed engineering drawings
   e. details of all proposed signage.
3. Regarding **Condition 3**, the use of plastic products, particularly as decking material, at this location is not supported and alternative products for construction should be considered.

   The Department of Biodiversity, Conservation and Attraction's Preliminary assessment of plastic infrastructure in the Swan Canning Riverpark (Borne et al. 2024) documented the degradation of plastic infrastructure in the Riverpark. Plastic infrastructure is to be avoided to mitigate the release of microplastics into the environment.

   In the event that there is no viable alternative product and plastic products are approved by the Department of Biodiversity, Conservation and Attractions in this location, evidence is to be provided that the proposed plastic products (e.g. fibre-reinforced plastic) satisfy the following minimum requirements:

   a. evidence that the product is specified for use within the subject environment (e.g. alkaline, estuarine, or wetland) including certification and/or material specifications to ensure material longevity and reduce the risk of plastic deterioration over time
   b. a manufacturers' warranty, applicable to the intended use of the plastic in this instance, of exceeding 15 years or greater
   c. the product is non-flammable and has fire-retardant properties
   d. the product contains UV treatments, (to be integrally moulded)
   b. does not contain materials or biproducts (eg non-slip grit) which are easily shed or lost into the environment
4. The Construction Environmental Management Plan (CEMP) required under **Condition 4** should describe how the authorised works will be managed to minimise potential environmental impacts. Guidance for preparation of a CEMP is provided in DBCA Guidance Note – *Construction Environmental Management Plans* (the PDF will download automatically) and https://bit.ly/SCRMAPolicies.
5. Regarding **Condition 4**, The Construction Environmental Management Plan should include a detailed methodology for identification of aquatic fauna within the marina, and for their safe relocation where required.
6. Regarding **Condition 4**, the Construction Environmental Management Plan should describe how aquatic noise will be managed to mitigate effects on fauna and should include:
   a. Noise mitigation and management measures
   b. Operational procedures including soft start-up procedures and marine mammal observers
   c. Safety zones including observation and shut-down zones.

   For further guidance on aquatic noise management, refer to the Underwater Piling and Dredging Noise Guidelines (Department for Infrastructure and Transport, 2023) - http://www.DIT.sa.gov.au/standards/environment.

7. During construction periods, evidence, including photographs, is to be submitted to the Department of Biodiversity, Conservation and Attractions on a fortnightly basis to demonstrate that the works are being carried out in accordance with the Construction Environmental Management Plan required by **Condition 4**.
8. Regarding **Condition 5**, it is preferred that a vibration pile driver with a soft start-up, rather than a drop hammer, be used to install the piles to minimise underwater noise. This should reduce noise impacts to aquatic fauna, including dolphins, which are often observed in this part of the estuary.
9. Regarding **Condition 5**, no pile driving shall start if dolphins are within 200m of the site and piling activity shall cease if a dolphin comes within 100m of the site and shall not recommence until the dolphin has moved more than 200m away or has not been observed for 30 minutes.
10. Regarding **Condition 7**, the Landscape Plan should include:
    a. the location, planting densities and species composition.
    b. weed control, including target species and any chemicals to be used, and its management within a water sensitive environment.
    c. stabilisation measures including engineering of rock revetments.
    d. a reticulation plan, indicating type and location of sprinkler, bubbler, drippers and if bore or scheme water will be utilised.
    e. fencing requirements.
    f. ongoing monitoring and maintenance program with a required maintenance period of 2 years.
11. Regarding **Condition 8**, lighting should be designed to minimise light spill so that fauna, community enjoyment and visual amenity are not unacceptably affected. All lighting is to be consistent with the National Light Pollution Guidelines for Wildlife (Department of Climate Change, Energy, the Environment and Water, 2023) and AS4282:2023 Control of the Obtrusive Effects of Outdoor Lighting.

    Further, light spill to the river and within habitat areas should be no more than 0.01-0.03 lux (moonlight), where possible, to ensure no adverse ecological consequences.

    The Lighting Plan should address the following design principles:

    - Start with natural darkness and only add artificial light for specific and defined purposes.
    - Use adaptive controls (e.g. dimmers. timers, motion sensors etc).
    - Light only the intended object or area – keep lights close to the ground, directed and shielded .
    - Use non-reflective surfaces.
    - Use lights with reduced or filtered-out blue, violet and ultraviolet wavelengths.
12. Regarding **Condition 9**, the Environmental Management System is to be updated in accordance with the current guidelines of the Department of Biodiversity, Conservation and Attractions and in accordance with the conditions of the River reserve lease.
13. Regarding **Condition 10**, the Maintenance and Inspection Plan shall commit to:
    a. corrective action when the plastic products need repair and replacement.
    b. examination of any plastic product used within the approved works.
    c. annual inspections (at a minimum).
14. Regarding **Condition 12**, in case of damage or pollution events, contact the Department of Biodiversity, Conservation and Attractions on 9278 0981 (Riverpark Duty Officer) or the Department of Transport and Major Infrastructure on 9480 9924 (Marine Pollution Response).

15. Prior to the commencement of works or any development being undertaken on site, an acid sulfate soils self-assessment form and (if required) an acid sulfate soils investigation shall be completed.
16. Regarding **Condition 13**, signage should be consistent with the City of Fremantle local laws and Local Planning Scheme. Signage should be in place for the duration of the works, in a location easily visible to oncoming pedestrians and cyclists.
17. Regarding **Condition 16**, the Operations Plan must outline:
    a. The procedure by which boat pens will be made available to residents of the adjacent apartment development 'The Moorings' who express interest in acquiring a pen, and
    b. A procedure to ensure that marina users are parking in the Pier 21 Marina car parking area to avoid additional parking pressure on the surrounding streets.
18. The applicant is reminded of its obligation to comply with any conditions or requirements set out in previous related planning approvals.
19. Regarding **Condition 17,** two copies of the Dilapidation Report should be lodged with the City of Fremantle and one copy should be given to the owner of any affected property.
20. Note that it is an offence under the Swan and Canning Rivers Management Regulations 2007 to destroy, pull up, cut back or injure any tree, shrub or perennial plant that is on land within the Swan Canning development control area, except with the prior approval of the Department of Biodiversity, Conservation and Attractions.
21. The Department of Transport and Major Infrastructure provides the following advice:
    a. All on water operations must be conducted in accordance with the relevant marine legislative provisions.
    b. A Temporary Notice to Mariners (TNTM) must be issued by the DTMI outlining the scope of the works, the works area, navigational marking (lighting) and dates of the works, prior to commencement. The applicant or works contractor is to provide notification of the works to the DTMI a minimum of 21 days prior to the works commencing to enable a TNTM to be published, by email to: navigational.safety@transport.wa.gov.au.
    c. Notification of any request for an extension of the works period must be made by the applicant or works contractor by email to: navigational.safety@transport.wa.gov.au prior to expiry of the scheduled works period.
    d. Confirmation of completion of the works must be made by the applicant or works contractor by email to: navigational.safety@transport.wa.gov.au once the works have been completed.
22. The work site is listed on the Register of Aboriginal Sites. It is recommended that the applicant contact the Department of Planning, Lands and Heritage to seek advice relating to the authorised activity and the Aboriginal heritage values of the area, to ensure that the applicant receives approval under the *Aboriginal Heritage Act 1972* for proposed activities within the boundary of Aboriginal Site ID 3536 (Swan River).

Report Status

Signed: _  _ Date: 29/07/2025

Michelle Corbellini

A/Executive Director (As delegate of the CEO)

Locality Plan - Pier 21 Marina, North Fremantle

Legend

- Swan River Leases - Rivers and Estuaries
- Swan Canning Development Control Area
- State Cadastre (GDB)

Metro Region Scheme

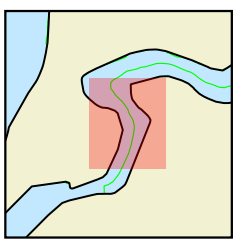
- Parks and recreation
- Primary regional roads
- Public purposes - Commonwealth Government
- Urban
- Waterways

N

1:3,750.028587 (A4)

0 25 50 75 m

Geographic Projection
Datum: GDA94



Produced by DBCA,
Department of Biodiversity,
Conservation and Attractions

Department of **Biodiversity, Conservation and Attractions**

Job Ref: 2024/4587
Produced at 12:30 PM on May 29, 2025

ATTACHMENT 2A

Total Berth Sizes			
Berth Size	**Existing**	**Original DA**	**Revised Application**
24m	7	11	**6**
20m	11	2	**10**
18m	16	28	**29**
15m	34	96	**83**
12m	54	20	**20**
10m	34	2	**0**
8m	20	1	**12**
4-7m	17	0	**0**
Jet Skis	0	16	**14**
Totals	**193**	**176**	**174**

AERIAL IMAGE. NOT TO SCALE

LEGEND

- ALL BERTH WIDTHS COMPLY WITH AS3962
- ALL DOUBLE BERTHS WILL HAVE MOORING PILES BETWEEN THEM
- THE T-HEADS ARE 3.5m WIDE
- FINGERS UNDER 20m ARE 1.2m WIDE
- FINGERS 20m AND OVER ARE 1.5m WIDE
- THE BOARDWALK IS 2.5m WIDE
- THE MAIN WALKWAYS ARE 2.5m WIDE
- ALL FLOATING JETTIES WILL SIT 500mm ABOVE THE WATER.

PROPOSED PIER 21 REDEVELOPMENT

SITE PLAN

date:	no.	description	by
08/07/25	D	Fishing Pontoon Added	nc
24/05/25	C	Title Revised	nc
22/05/25	B	Minor Revisions	nc
14/05/25	A	Issued for DBCA DA Submission	nc

REVISIONS

RODRIGUES BODYCOAT ARCHITECTS
38 Glyde St, Mosman Park
t.(08) 9 286 3304 f.(08) 9 286 1464
e. info@rodbod.com.au

JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG Site Plan

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.
as shown	nc	sr	Oct 2023	-

A1.0
Rev. D

Date Printed: **Tuesday, 8 July 2025**

/Users/nc/Documents/RBA Contract Work/Pier 21/Project/01_Current_DBCA Submission 2_150525/PIER21_Current_AC27_140525.pln

(08) 9430 4500 | info@pier21marina.com.au
pier21marina.com.au | ABN: 38 675 614 052
Pier 21 Marina Pty Ltd

21 May 2025

Department of Biodiversity Conservation and Attractions (DBCA)
17 Dick Perry Avenue
Kensington WA 6151

Attention: Statutory Assessments Rivers & Estuaries Branch

Pier 21 Marina – Revised Development Application

We are pleased to submit our amendments to our Development Application of 24 October 2024 relating to Pier 21 Marina.

As we noted in our Development Application, the unique location creates a once in 50-year opportunity to create a fantastic marina and surrounds, which will benefit the Perth boating public and the local community for the decades to come.

Stakeholder Engagement

Since the lodgement of the Development Application in October 2024, we have undertaken the following consultation with the various stakeholders which has shaped the changes in our plans as outlined in the subsequent sections.

- The Moorings representatives, at least 5 meetings
- North Fremantle Community Association, 2 meetings
- Whadjuk Aboriginal Corporation and representatives, 2 meetings
- Swan Canoe Club, 1 meeting
- City of Fremantle and representatives, 3 meetings
- Department of Transport, at least 3 meetings

Key Changes to Development Application

The following changes have been made to the Development Application based on feedback from the DBCA and the above, which are noted below;

- Removal of the accessway to the walkway at Portside Park. This accessway was included in the original DA to allow universal access to the walkway and as a starting point to it. We now propose to use the existing abutment and connect the two jetties.

- We have removed the section of the walkway between Jetty B - C. There was a preference from several stakeholders to retain this open connection to the river.

- We propose to completely open the existing beach at the base of old Jetty G for new Jetty F. See **Figure 1a** and Figure **1b** for a visual representation. The original DA had a gangway serving as the end of the boardwalk which bisected that portion of the beach. To improve public access to this area and make the beach a public feature, we have;

    - removed the gangway in the previous submission
    - created space for swimming at the base of new Jetty F
    - included a small platform for kids to access / play from the jetty walkway

Figure 1a- *Existing views from the footpaths toward the river.*

Figure 1b- *New views from the footpaths toward the river.*

- We have shifted the various jetties to improve the sightlines for the public and local residents alike. For example;

    - The fairway between Jetty B – Jetty C has been moved so it better aligns with the existing area of clear vegetation. This permits clear views from the footpath

    - Jetty A and Jetty B have been moved a few metres North, so they align better with existing vegetation which mostly obscures the walkway. This is still within our existing lease boundary. See **Figure 2**.

- We have created a universal accessway at Jetty C which requires a 1:14 gradient in 80% of tidal conditions. This allows people of all abilities to access 4 of the 6 jetties of the marina via the walkway

- We have increased the fairway widths from 1.5 times boat length to 1.75 times the boat length based on feedback received. This is the preferred width in the Australian Standard and will improve amenity for the boating public. It is noted that many of the existing fairways are below the minimum 1.5 x standard - and in some locations only 1.1 x the boat lengths.

- We have increased the width of each entrance channel to the marina by reducing the T-Head length, based on feedback received from the Moorings and the Department of Transport

- We have retained the existing accessway to Jetty B based on feedback received from the Moorings

- We have increased the number of smaller boats (ie. less than 12m) from 19 to 26 based on feedback from the Moorings submission

- We have brought forward the replacement of old Jetty G from potentially the 10-15 remaining years of useful life, to being part of the present development. This will mean a consistent look and feel to the marina. This is a significant additional investment.

Numerical Comparisons

Shown below are some key numerical comparisons between the Existing Marina, our original Development Application and that of this Revised Application. We would like to draw attention to several aspects:

- In terms of gross lease area, there is an increase of approximately 12%. However, in terms of an effective lease area there is actually a minor reduction. This reflects the fact that the existing marina enjoys exclusive use of the area between Jetty B and C, whilst not having it within its official lease boundary. Taking this into account the area of the proposed marina is virtually a reduction of some 65 sqm or 0.2%.

- The total length of all boats in the marina is increasing from 2,436 lineal metres to 2,511 lineal metres – a total of 75 metres (or 3.1%).

- The total number of pens is reducing from 193 to 173, which also includes 16 jet-skis

- While the average boat size is increasing from 12.6 metres to 14.4 metres

The 12% increased area, despite the lower number of pens is mainly attributed to the need to comply with contemporary Australian Standards for fairway widths and the inclusion of finger jetties for each boat pen, which are preferred under AS.

Measurement	Existing Marina	Original DA	Revised Application	Difference between Existing Marina and Revised
Lease Area (m2)	29,739	34,253	33,485	12.6%
Effective Lease Area (m2) via inclusion of B-C	33,550	34,253	33,485	-0.2%
Total Length of Vessels (lineal metres)	2,436	2,580	2,511	3.1%
River Crossings / abutments	7	4	3	-57.1%
# of pens	193	176	173	-10.4%
# of pens, ex jet skis	193	160	157	-18.7%
Jetties	7	6	6	-14.3%
# of separate lease areas	3	1	1	-66.7%
# of parking bays	46	46	46	0.0%
Minimum Fairway Width	1.09		1.75	60.6%
Public Seating	-	2	8	
Average pen length (m)	12.6	14.7	14.4	14.3%
Length of public access to Portside Park beacl	23		57	147.8%
Length of public access to beach to the south	44		80	81.8%
Parking Ratios	0.24	0.26	0.27	11.6%
Average Length of T Head	40.3	48.0	37.3	-7.4%

Walkway and jetty layout

After receiving stakeholder feedback, we have removed the section of walkway between Jetty B and C. We feel it is essential to the development that the remainder of the walkway remains because;

- It is an appealing way for the general public to walk along and be connected with the water spaces even if they are not part of the marina. It is a public option that will likely be preferred to the existing pathway for many users

- It will create greater connection for the boating users of the marina and will allow more casual interaction between them, rather than several individual private jetties

- It enables a reduction in riverbank crossings from the existing 7 jetties to 3. From an aesthetic perspective, less abutments and gangways mean less obstruction / disconnection with the river. This is consistent with State Planning Policy 2.10

- It allows existing abutments to be used irrespective of the location of each jetty arm. This means there are no changes to trees or vegetation in our entire proposal. Without this walkway, either;

    - the abutments need to be located where the jetties are which means more abutments in new locations, or;

    - jetties need to be at existing abutments which compromises efficiency and amenity to the boating public, noting the impact of Australian Standards relating to fairway width

- It assists with provision of services for fire, water and power without requiring easements on council reserve. Otherwise, a service channel will be needed between new jetties C and F, which is distance of approximately 130 metres

- It permits universal public access to the jetties C - F, noting a 1:14 gradient is required for 80% of tidal conditions. Without the connection provided by the walkway, universal access would be limited to where 14m gangways could be placed. This is not efficient nor convenient for people needing universal access.

- The removal of the gangways at old jetties D and F creates a 7 – 10 metre clear corridor of water as shown in **Figure 1a** and **1b**. In particular, the removal of the gangway at old Jetty F in **Figure 1b** provides clear and unobstructed views from the footpath all the way to the sandy beach at old jetty G.

- It should be noted that on the opposite side of Rocky Bay in Mosman Park, there is a 700m parallel walkway – so a short parallel pathway is not without precedent.

None of the above improvements are possible without the walkway.

It has been suggested that the walkway may diminish the visual and physical connection with the river. **The answer to this question depends on where on the river this perspective is taken from**. This is because many sections of the riverfront area and walkway will be totally obscured by existing vegetation which corresponds with Jetty A, B and D.

Please see the photos below that highlight this.

***Figure 2**- Ground level view of walkway between Jetty A and Jetty B. Not visible*

***Figure 3** - Ground level view of walkway at new Jetty D*

***Figure 4** - Ground level view of walkway looking north from Jetty D. It will not be visible from at least 50% of the pathway between Jetty C and D.*

It should be noted that only a portion of the walkway will be visible from the public footpath, much of it is obscured by vegetation in front of the Moorings.

Portside Park Redevelopment (Concept Only)

The proposal incorporates the demolition and make good of old Jetty A, for which we have a firm agreement to acquire as part of this redevelopment.

This allows for the City of Fremantle to connect the entire foreshore of Portside Park back to the river.

We have included a conceptual vision of what activation of Portside Park's foreshore may include (attachment 5/6), drawing attention to:

- A publicly accessible beach by removing a shallow rock revetment
- A purpose-built fishing pontoon jetty
- The possibility of safe public swimming inside a shark barrier
- Civil works sympathetic to the natural contours in the locality

Figure 6 – *Potential swim pool and shark barrier with pontoon***

** we had hoped the new marina would be captured in this photo but it is slightly to the left.

Community Benefits

We believe there are substantial community benefits to our revised proposal;

- Removing Jetty A (at our cost) releases this waterfront back to the public and creates open views across the river. This will permit the City of Fremantle to create a terrific public space, a beach and potentially a 50m swim pool with shark barrier. Recreational fishing opportunities will exist off the small floating pontoon that could be constructed by the State. Given the protection afforded by the barrier, we do not see a conflict between boats etc.

- At the base of Jetty C, we have created a short-term public boat tie up space so that river users will be able to load people or supplies etc. This will be especially useful for boat users on moorings etc. This will be accessible 24/7. The idea of this feature came from our consultation with the North Fremantle Community Association.

- We believe the proposed orientation of New Jetty C provides better sightlines to the river from the base on John Street given the orientation of the existing jetty. The existing Jetty C is moving slightly south-east and angling further south-east which means that traffic and pedestrians walking along John Street will see improved views of the river. At present, these views are blocked by the presence of vessels at the base of Jetty C.

- The proposed "Lilypad" at the base of New Jetty C, will permit canoe / kayak launch from a flat / stable platform, which does not presently exist. Swimmers may safely enter the water should they choose to instead of using the current rockwall.

- During daylight hours, the public will be able to access the river via the floating jetties which will have seating facing the river. There are very few places on the river where the public can have this level of access to passing boats.

- Public feedback has highlighted that the proposed changes may visually impact the foreshore. The proposal seeks to increase the public access to the foreshore by 54 lineal meters (north to Portside Park and South to Gilbert Reserve).

- Our revised proposal is consistent with;

    - Section 5.18 of Corporate Policy Statement as it improves public access to foreshore areas

    - Corporate Policy Statement No. 45 from states that "walkways and pathways for pedestrians provide public access and can enrich visitor experience."

- Revision of our plans for existing Jetty G and New Jetty F will greatly improve the public use of this existing beach. See **Figure 7** below.

Figure 7 – *Open beach and swim platform*

Visual Impact

We do not believe there is any material change in the size and scale of the development.

The proposed redevelopment falls broadly in line with the areas of an existing marina facility. The necessary relocation of the jetties to maintain compliance with the Australian Standards will modify some visual aspects, offset by positive impacts elsewhere. On balance, as it is an existing facility, broad visual changes to the locality would be unremarkable.

The proposal of floating pontoons would reduce the permanent structural bulk of the jetties. Floating pontoons rest 0.5m above the tide line where the current permanent jetties protrude over 1.5m+ above the tide line.

The variable bulk created by vessels moored is minor, with modifications to the total lineal metres of berthing increasing by 3.1%. The larger vessels are located at the exterior of Jetty A and Jetty F, which reduces the scale of the vessels in the central part of the marina.

When considering structural bulk and scale in the context of the natural foreshore (viewed from the adjoining shoreline), the marina modifications would be minor compared to the scale of the adjoining Moorings apartments.

The total public shoreline is increasing by 54 lineal metres. An example is the opening up of Portside Park by the removal of old Jetty A, which gives the public much clearer views of the river.

Figure 8a *– Current view from Portside Park*

Figure 8b ***–*** *Potential view prior to enlargement of beach and shark barrier*

Parking

Please see the separate Parking Statement that has been submitted to the DBCA addressing this matter. To provide a condensed summary of the key points in that letter, we reiterate the following points;

- When this marina was originally considered in conjunction with the Moorings apartments development, the Australian Standards at the time (AS3962 - 1991) had much more onerous parking requirements for marinas of 0.3 - 1.0 parking bays per wet berth. This resulted in the original development application for the marina and apartments stating that some pens needed to be utilised by the Moorings residents.

- The most recent marina standard (AS3962 – 2020) requires a much lower parking ratio of 0.25 bays per wet berth. This means that the marina itself has sufficient parking for the proposed marina, without any reliance on the parking associated with the Moorings apartments.

- Indeed this is consistent with our observations that the current parking is not fully utilised even on the busiest days (like Australia day this year, when we had ~ 15% vacancy. There will also be fewer boats in the new marina with the same number of parking bays in the proposed development.

Safety for Non-Motorised Vessels

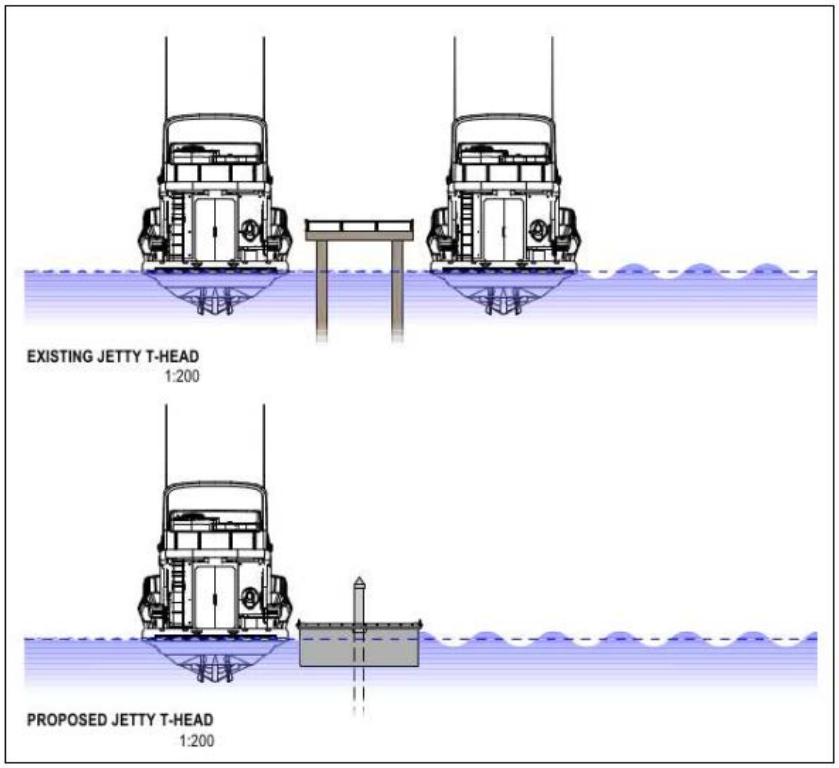
The Department of Transport asked for an engineering study to be completed to assess the potential impact of the marina on small vessels and other craft adjacent to the T-heads.

Following completion of the study, the Department of Transport advised they were satisfied with the river widths and 11m navigational buffer for small non-motorised craft to pass around the marina.

That study completed by Burbury Consulting confirmed that;

Within the navigation channel the impact of changing the marina from the existing arrangement (larger vessels moored outside the T head) to the proposed arrangement (wave attenuator units as the outer T heads with vessels moored on the leeward side) would not result in a measurable change in the wave climate or conditions on the seaward side of the marina.

The report shows that for small vessels passing nearby the outside of the marina, the reflected wave will be no more than that associated with the existing marina where large boats are located on the outside. This is depicted pictorially in the following image from that report.



A copy of this report has been sent to you separately.

The figure above also shows that there are improved sightlines for kayakers compared to having 6-7m high boats on the outside of the marina as exists at present. These improved sightlines also apply to vessels departing the marina, who will be able to see passing kayakers sooner.

Summary

We believe that the process of engaging with the various stakeholders has led to an improved proposed development for Pier 21 and we believe that it will benefit the boat users and public for many decades to come.

We welcome any questions that you may have with our revised application.

Yours sincerely,

Michael Sier
Managing Director

Kent Cliffe
Director

Appendix 1 - Stakeholder Impacts

Stakeholders	Marina Impacts
General Public	The general public will enjoy a new facility they can access in daylight hours. They will have the ability to be connected right on the water at many locations along a 2.5m wide walkway that is proximate (500mm high) from the water. Four river crossings and gangways will be removed. They will be able to access the river via the walkways and bench seating.
Boating Public	The boating public (approx. 173 people their families) will have access to a new marina, with stable floating jetties and finger jetties which is connected facility and aesthetically appealing. It will be built to the latest Australian Standards and be one of the best new marinas in Australia.
Swimmers	Should they choose, swimmers will be able to access the river from The Lilypad and ladders at Jetty C, instead of over the existing rockwall. This was a request from a Moorings resident.
Canoeists	Similarly, canoes / kayaks can be launched from this location instead of over the rockwall. The key issue of the Swan Canoe Club was the narrowing of the river and reflected wash. After the development, the river at the Pier 21 site is not materially narrower that other parts of the area. The canoe club confirmed that crossings typically aim at the existing navigational marker and therefore we can see no reason why this crossing cannot take place approximately 150m further up the river toward Fremantle if they were concerned. The study for the DoT confirmed that reflected wash is not an issue.
Fishing	There are opportunities for fishing at the marina off the T-Heads. While this is not to be encouraged, it will still be permitted for younger children as presently occurs with the public access to the jetties. This is something that Pier 21 Marina can manage sensibly.
Walkers	The design of the marina, with walkway provides members of the public and appealing alternative pathway. Pen users will have the opportunity to walk with their trolleys along the walkway as well as for pedestrians. Having the dual access (ie. public walkway and our walkway) from our car park will separate some of this traffic.

PIER 21 LEASE VARIATION PLAN
1:500

Initial Areas	Area (m^2)	Variation %
Initial Pier 21 lease area (per lease agreement) assigned to Boat Pens Pty Ltd	27,500	
Initial Jetty A lease area (per lease agreement) assigned to Boat Pens Pty Ltd	2,239	
Add infill area shown which is effectively exclusive use	3,811	
Total Effective Commencing Lease Area	**33,550**	

Area Variations	Area (m^2)	Variation %
Existing P21 lease area variation measured with new MNG survey	26	
Plus new lease area extension into Swan River	5,933	
Area removed south of Jetty G	-2,612	
Area removed north of Jetty A	-1,173	
Jetty A area demolished/removed	-2,239	
Net Variation	**-65**	**0%**
Total Pier 21 Lease Area Requested	**33,485**	**0%**

AERIAL IMAGE. NOT TO SCALE

PIER 21 REDEVELOPMENT
LEASE AREA VARIATION

date:	no.	description	by
14/05/25	A	Issued for DBCA DA Submission	nc

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JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG PIER 21 REDEVELOPMENT: LEASE AREA VARIATION
A1.5

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.	
as shown	nc	sr	Oct 2023	-	Rev. A

Date Printed: **Wednesday, 14 May 2025**

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PIER 21 REDEVELOPMENT - RIVER NAVIGATION CONSIDERATIONS
1:1500

NOTES

1. THIS DRAWING SHOWS THE RIVER NAVIGATION CHANNEL AROUND THE PROPOSED PIER 21 LEASE BOUNDARY.

LEGEND

100m — CURRENT RIVER NAVIGATION DIMENSIONS.

100m — PROPOSED PIER 21 NAVIGATION DIMENSIONS

PIER 21 REDEVELOPMENT - RIVER NAVIGATION
NAVIGATION CHANNEL

date:	no.	description	by
14/05/25	A	Issued for DBCA DA Submission	nc

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JOB PIER 21

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DWG Pier 21 Redevelopment - River Navigation
Sheet 2: Navigation Channel

A1.2

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.	
as shown	nc	sr	Oct 2023	-	Rev. A

Date Printed: **Wednesday, 14 May 2025**

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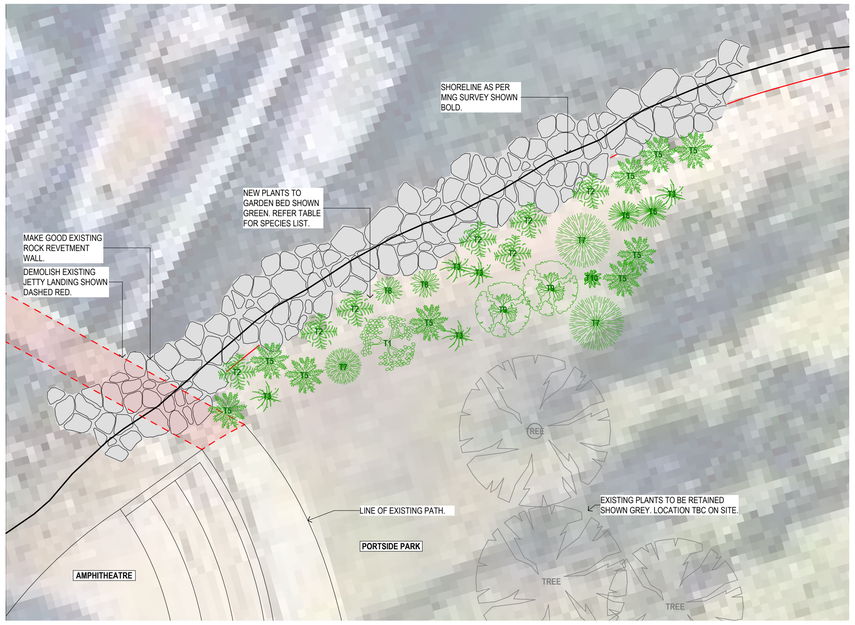
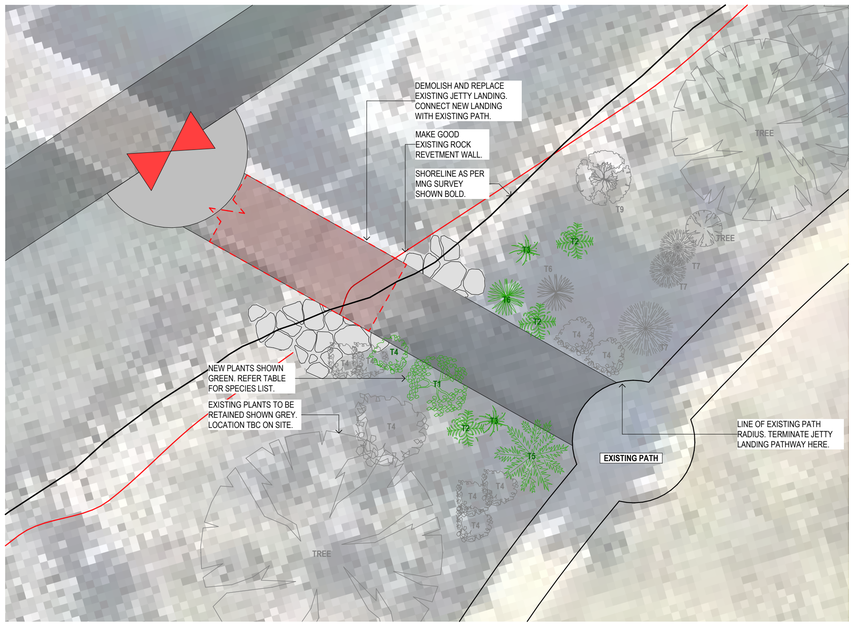
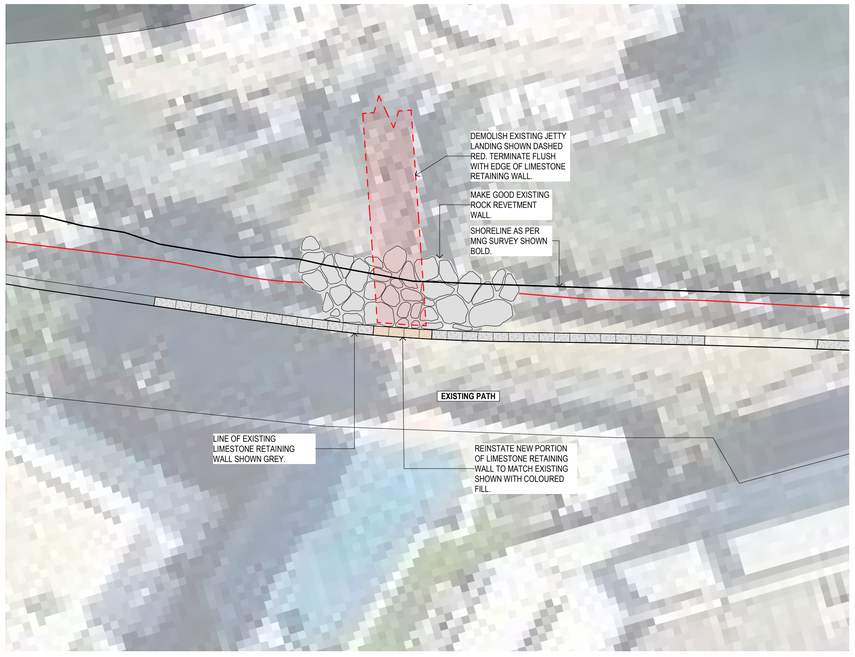


1 JETTY A LANDING
1:100

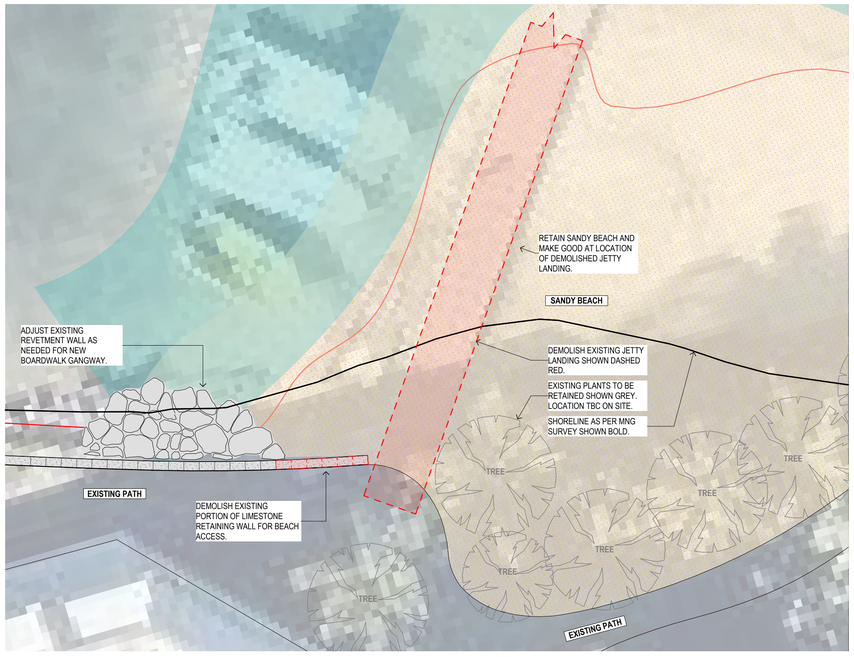


2 JETTY B LANDING
1:100

3 JETTY D LANDING
1:100



4 JETTY F ALNDING
1:100



5 JETTY G LANDING
1:100

Jetty	Immediate Locality	Proposed Alterations	Proposed Plant Species
Existing Jetty A	Rock revetment wall, amphitheatre, path and beach.	Removal of jetty landing. Reinstatement of rock revetment wall. New path and garden bed.	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Existing Jetty B	Rock revetment wall and shoreline vegetation.	Replacement of jetty landing. Reinstatement of rock revetment wall and shoreline vegetation.	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Existing Jetty D	Rock revetment wall and shoreline vegetation.	Removal of jetty landing. Reinstatement of rock revetment wall and shoreline vegetation. Addition of paving and bench.	Type 2, 11, 12, 13
Existing Jetty F	Limestone wall, rock revetment wall and shoreline vegetation.	Removal of jetty landing. Reinstatement of rock revetment wall and limestone retaining wall.	Not required
Existing Jetty G	Sandy beach.	Removal of jetty landing and portion of limestone wall. Maintain existing sandy beach.	Not required

PLANT SPECIES LIST


TYPE 1: ACACIA PYCNANTHA


TYPE 2: ATRIPLEX


TYPE 3: CONOSTYLIS CANDICANS


TYPE 4: TREE BEDSTRAW (COPROSMA REPENS)


TYPE 5: DARWINIA CITRIODORA


TYPE 6: DIANELLA REVOLUTA


TYPE 7: FICINIA NODOSA


TYPE 8: LOMANDRA LONGIFOLIA


TYPE 9: MELALEUCA RHAPHIOPHYLLA


TYPE 10: PIMELEA FERRUGINEA


TYPE 11: ADRENANTHOS


TYPE 12: DIMORPHOTHECA ECKLONIS (NOT NATIVE)


TYPE 13: WESTRINGIA FRUTICOSA

PIER 21 REDEVELOPMENT
PROPOSED LANDSCAPE PLANTING LAYOUT

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14/05/25	A	Issued for DBCA DA Submission	nc

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DWG Pier 21 Redevelopment - Landscape Planting Layout
SCALE as shown | DRAWN nc | CHECKED sr | COMMENCED Oct 2023 | JOB No. - | Rev. A
A1.8

Date Printed: **Wednesday, 14 May 2025**

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BURBURY CONSULTING

Engineering & Project Management

To:	Luke Sier (Pier 21 Marina Pty Ltd)		
Project:	Pier 21 Marina Redevelopment	Date:	28/04/2025
		Job No.	25-1981
From:	Dave Unwin (Senior Maritime & Coastal Engineer)	Doc No.	1981-MEM-001
Subject:	Wave attenuator – Wake wave reflection review	Revision:	2

1. Executive Summary

Burbury Consulting (Burbury) has undertaken a review of the expected wake wave reflection for the proposed Pier 21 Marina redevelopment which comprises a series of floating wave attenuator units at the T heads of each jetty arm.

The objective of the wake wave reflection review was to assess the impact of the proposed redevelopment on the vessel wake wave climate adjacent to the marina, particularly as it pertains to small craft and paddlers.

Passing vessel parameters have been established based on published Swan River Trust wake wave reports and the corresponding likely maximum wake wave heights at the proposed site (both with and without wave attenuators) have been determined. Typical wake heights up to H=0.5m may be experienced at the site, with a range of wave periods up to a maximum of around 6 seconds.

Under short-period wave conditions, wave energy is reflected off the attenuators back towards to river channel. However, this has been demonstrated to be no worse than is likely with the existing marina arrangement which typically has larger vessels moored outside the T heads.

For longer period wake waves such as those generated by the Rottnest Ferry (greater than 4s), the proposed attenuator geometry would transmit around 80% of the incident wave height, resulting in minimal impact to the incident wave conditions, with a typical maximum total wave height (incident plus reflected) of H=0.5m.

The proposed attenuators are only likely to influence the incident wake wave climate in the immediate vicinity of the structures (in the order of 10-25m seaward), with the resulting confused sea state settling down rapidly once the wake wave train has passed.

Within the navigation channel the impact of changing the marina from the existing arrangement (larger vessels moored outside the T head) to the proposed arrangement (wave attenuator units as the outer T heads with vessels moored on the leeward side) would not result in a measurable change in the wave climate or conditions on the seaward side of the marina.

2. Introduction

2.1 Background

Pier 21 Marina Pty Ltd (Pier 21) has submitted an application for planning approval for the redevelopment of the Pier 21 Marina, located in North Fremantle. In assessing this application, the Department of Transport (DoT) has requested further clarification regarding the impact of the proposed redevelopment on the vessel wake wave climate adjacent to the marina, particularly as it pertains to small craft and paddlers.

Burbury has been engaged by Pier 21 to undertake a review of the proposed wave attenuator reflection coefficient using empirical calculation methods and to compare the likely wake wave conditions adjacent to the proposed attenuator.

2.2 Wave reflection assessment methodology

The assessment involved a review of previous wake wave studies conducted on the Swan River to identify appropriate design vessels and transit speeds. Observed wake conditions from prior studies were compared with the probable conditions at the Pier 21 site using specialised wake wave analysis tools. Additionally, site wave data collected over a 6-week period was reviewed for comparison with the numerical model. Typical wake wave parameters, including wave height and period, were established for the site, based on these comparisons.

Furthermore, an analysis of wave transmission and reflection coefficients for the proposed attenuator cross-section was performed, along with an assessment of its reflection coefficient in comparison to the typical vessels currently present within the existing marina arrangement.

3. Wake wave assessment

3.1 Design vessels

Burbury has conducted a review of two detailed reports commissioned by the Swan River Trust, namely 'Investigation into the Effect of Wash of Boats and Wind Waves on the Swan River' (AMC, 2009) and 'Full-scale Boat Wake and Wind Wave Trials on the Swan River' (CMST, 2010). Based on these reports, typical vessels transiting past the Pier 21 site have been broadly categorised into three types:

- small recreational vessels with hull lengths between 5 to 7 meters,
- large recreational vessels measuring approximately 15 meters in hull length, and
- large commercial ferries extending to about 38 meters.

However, it is acknowledged that vessels of all lengths, ranging from 3 to 38 meters, may navigate the river and these categories represent a simplification of the likely river vessel traffic.

An 8-knot speed limit is enforced along this section of the Swan, and only test results up to this speed have been considered in this analysis.

Based on the findings from the Swan River studies, simplified design vessels have been identified and categorised accordingly. The design vessel parameters are summarised in Table 3-1

Table 3-1 Simplified design vessel parameters

Vessel category	Tested vessel	Hull waterline length (m)	Displacement (T)	Beam (m)	Draft (m)
Small recreational	Haines Hunter Patriot 680	7	2.1	2.5	0.5
Large recreational	Riviera Offshore Express 48	15	20	4.9	1.1
Commercial ferry	Starflyte Express	38	85	8.5	1.1

3.2 Wake wave parameters

The wake wave parameters at the site are influenced by multiple factors, including vessel hull waterline length, displacement, speed, acceleration or deceleration, transit direction, and the distance from the sailing line. Additional considerations include channel bathymetry, bottom conditions, wave reflection from surrounding structures, and the interaction of wake waves with wind waves or other vessel wakes.

For the purpose of this assessment, the likely wake wave heights for the three identified vessel categories were determined based on the highest wake waves observed during the Swan River wake wave tests for the design vessels and speeds listed above, accompanied by corresponding wave periods (Table 3-2).

Given that vessels of varying hull lengths and speeds navigate the river, an assessment of wave reflection across all probable wave periods has also been conducted.

Table 3-2 Summary of maximum test results for nominated design vessels (Source: Swan River Trust)

Vessel category	Tested vessel	Sailing line distance (m)	Average speed (kn)	Max. wave height (m)	Corresponding period (s)
Small recreational	Haines Hunter Patriot 680	17	7.6	0.36	2
Large recreational	Riviera Offshore Express 48	31	8.2	0.39	2
Commercial ferry	Starflyte Express	30	9.5	0.38	4.7

The numerical assessment of wake waves at the Pier 21 site utilised the Vessel Wake Prediction Tool (Figure 3-1), developed by the US Army Corps, which employs various empirical methods for wake wave evaluation. The most suitable method was selected based on how closely the modelled wakes aligned with the Swan River results. Specifically, for the two larger vessel categories, the Gates and Herbich method was adopted, while for the smaller 7-meter vessel, the Bhowmik wake model was deemed more appropriate.

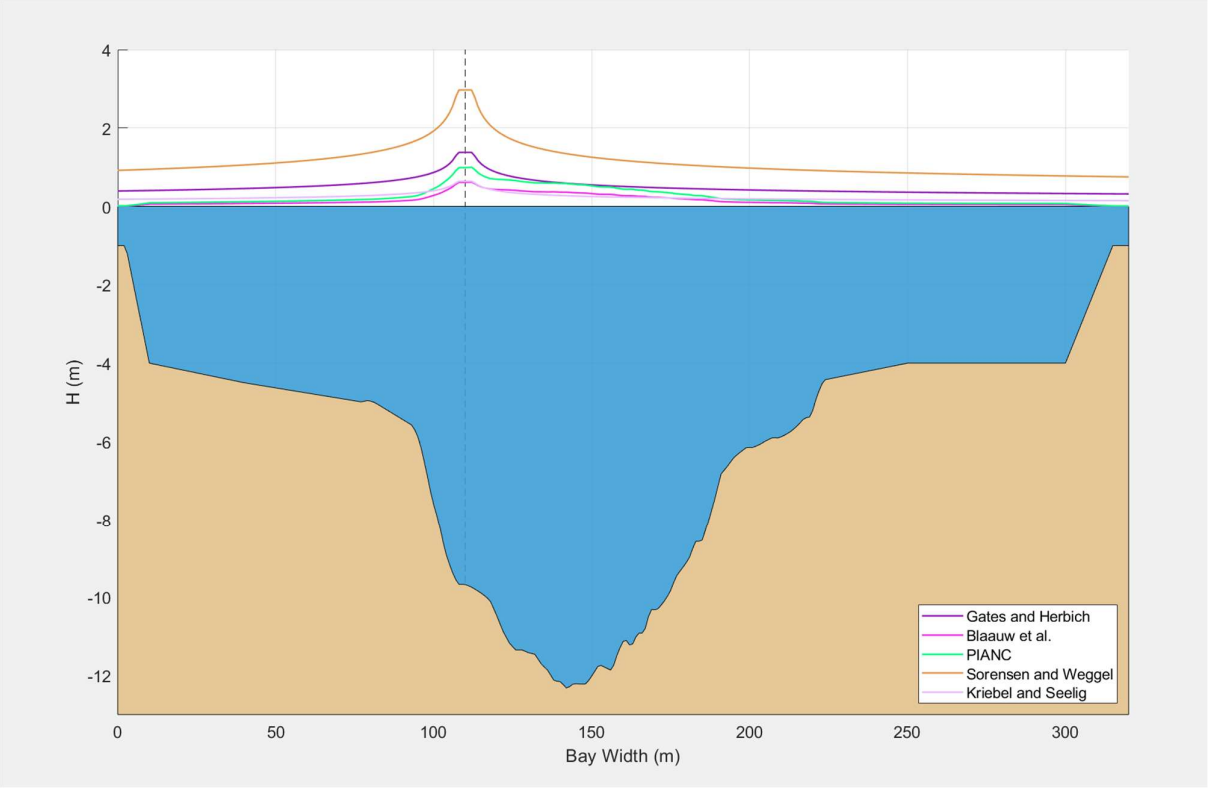

Figure 3-1 Typical output from Wake Prediction Tool showing Swan River channel bathymetry (Source: WA Bathymetry Portal)

The test results were then compared to the numerical model for same sailing scenarios (using the Wake Wave tool). Results of this comparison are presented in Table 3-3. Generally, there was good agreement although the magnitude of the Patriot 680 wake was underpredicted by the model. Other (non-maximum) measured Patriot 680 results were considerably smaller suggesting the H=0.36m was somewhat of an anomaly. Similarly, the observed wake period for the Riviera 48 was smaller than the modelled wave period (2s vs 4.4s). Test results show a high sensitivity to vessel speed, and test speeds of 10 knots had periods greater than 4s.

Table 3-3 Test measured wake heights vs numerical model

	Observed Wake Conditions				Modelled conditions	
Vessel category	**Sailing line distance (m)**	**Average speed (kn)**	**Max. wave height (m)**	**Corresponding period (s)**	**Model wave height (m)**	**Modelled period (s)**
Small Rec. (Patriot 680)	17	7.6	0.36	2	0.22	2.1
Large Rec. (Riviera 48)	31	8.2	0.39	2	0.37	4.4
Ferry (Starflyte Express)	30	9.5	0.38	4.7	0.41	5.1

The wake wave calculations for the design vessel scenarios were then undertaken for both the proposed (15-meter sailing line transverse distance) and existing (25-meter sailing line) marina layouts. The results indicated a decay in wake amplitude of approximately 15-20% over the additional 10-meter transverse distance (Table 3-4).

Table 3-4 Typical incident wake wave parameters (8 knot limit)

		Proposed attenuator layout				Existing layout	
Vessel category	**Nominal vessel**	**Sailing line (m)**	**Speed (kn)**	**Wake wave height (m)**	**Period (s)**	**Sailing line (m)**	**Wake height (m)**
Small recreational	Haines Hunter Patriot 680	15	8	0.23	2.1	25	0.19
Large recreational	Riviera Offshore Express 48	15	8	0.48	4.2	25	0.41
Commercial ferry	Starflyte Express	15	8	0.32	4.3	25	0.27

Maximum wake waves experienced at the site may vary from the above due to wave interaction or reflection off other structures. Primarily, as observed in the test results, vessel speed has a large influence on wake height and period, and vessels exceeding the posted 8 knot limit may cause a large increase in wake wave height. The parameters given in Table 3-4 are indicative of likely wake wave conditions at the site for vessels transiting close to the navigation markers.

Wave periods may also increase with vessel speed. Periods up to 8 seconds were observed from the Commercial Ferry trials at high speed.

3.3 Site wave data

Pier 21 recorded site wave data at the outer T head over a period of approximately 6 weeks between November 11, 2024 and December 23, 2024. This data has been processed by Coastal-e Solutions and presented in the memo *'Wave and Wake Analysis at Pier 21 Marina'*. The data showed that wake waves are typically the primary contributor to wave energy at the site, which is expected given the sheltered location. Recorded wave heights (which likely include some reflection from the existing marina) reached a maximum of Hmax=0.6m as shown in Figure 3-2.

Less than 0.5% of recorded maximum wave heights were above H=0.5m and more than half of the recorded maximum wave heights were less than H=0.2m.

The site wave data supports the calculated typical wake wave parameters and suggests that wave conditions adjacent to the marina are relatively mild for the majority of the time

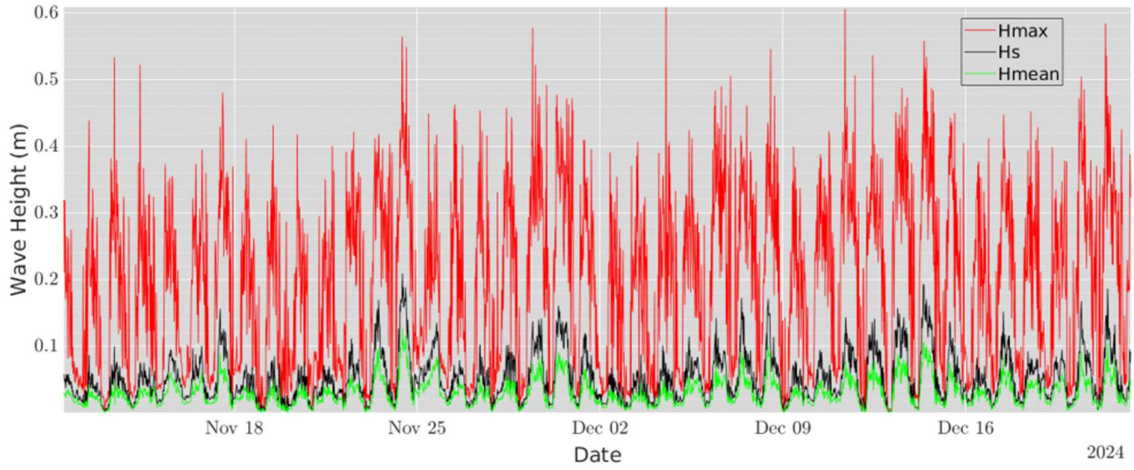

Figure 3-2 Maximum, Significant and Mean Wave Height (Source: Coastal-e solutions)

4. Floating attenuator wave reflection

4.1 Proposed layout and attenuator parameters

The proposed marina redevelopment layout is shown in Figure 4-1. It includes a total attenuator length of 227 meters facing the channel, with gaps between attenuators totalling approximately 149 meters, equating to an approximate blockage ratio of 60%.

An additional navigation aid is to be installed, and the existing beacon #847 is to be relocated northward, as depicted in the accompanying layout diagrams (Figure 4-1). It is anticipated that vessels transiting past the marina will do so within the designated marked channel.

The approximate distance from the marked channel to the outer face of the attenuator may be as little as 15 meters. In contrast, the existing marina vessels are moored further from the current navigation marker #847, at an approximate distance of 25 meters. However, due to the absence of a secondary southern navigation marker at present, vessels are more likely to navigate closer to the marina reducing the clearance from the outside moored vessels.

A distance of 15m from the sailing line to the proposed attenuator (and 25m for existing layout) has been adopted for all wake analysis to represent an upper bound to wake height seen at the marina. This distance would suggest vessels are hard up against the nav markers which in practice is unlikely to be the case.

The proposed cross-section geometry for the attenuator units typically shows a width of 4 meters and a draft of 0.8 meters.

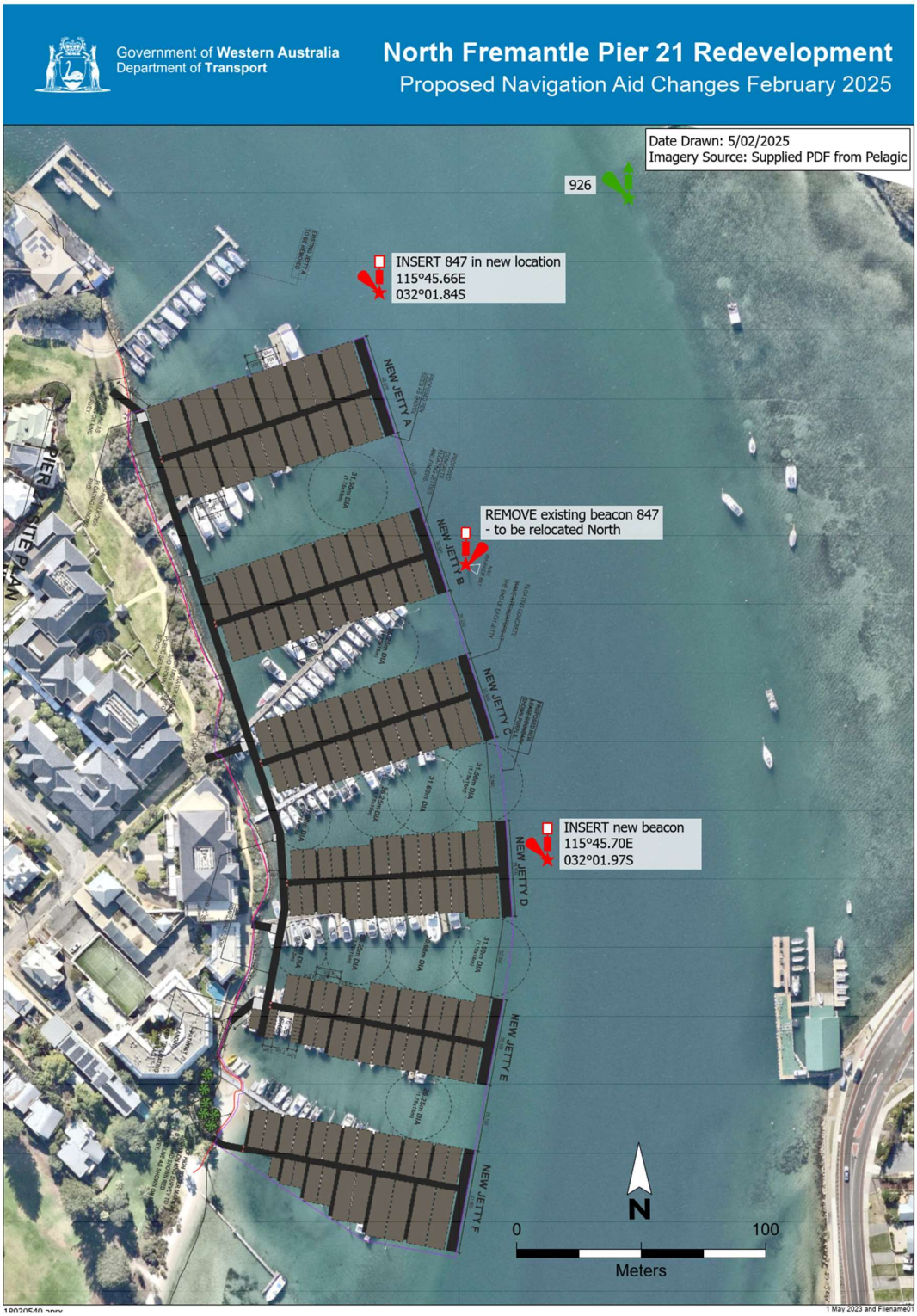

Figure 4-1 Proposed new marina layout and Nav Aid locations (Source: DoT)

4.2 Empirical calculation methods

The performance of floating attenuators or breakwaters can be assessed through full-scale or scale model physical testing, empirical calculations describing wave transmission theories, or computational fluid dynamics (CFD). Biesheuvel (2013) conducted an extensive review titled 'Effectiveness of Floating Breakwaters' (TUDelft), which outlines various numerical methods and compares them against test results and CFD analyses. This review specifically examines breakwaters anchored by mooring chains, as well as fixed breakwaters and pile-restrained structures similar to those proposed for Pier 21.

The flow chart derived in the review is presented in Figure 4-2 below.

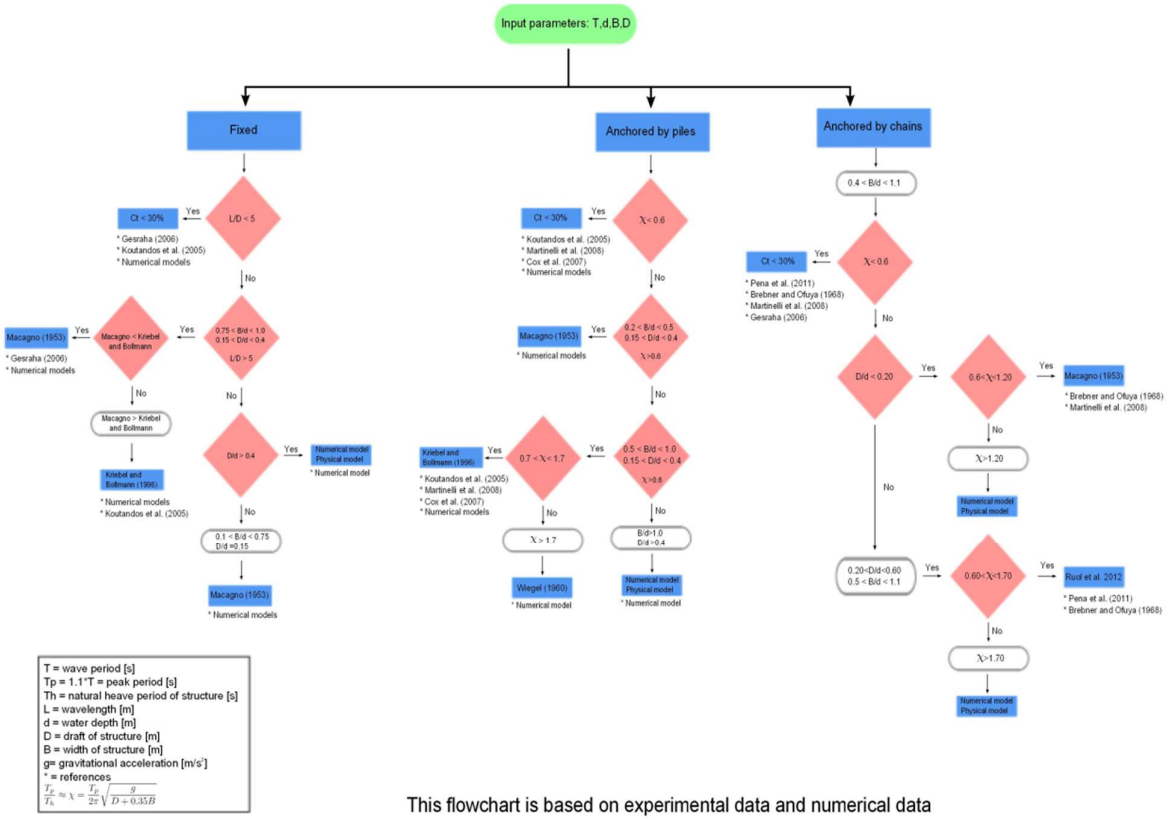

Figure 4-2 Breakwater analysis flow chart (Source: Biesheuvel, 2013)

Based on industry experience, Burbury has determined that the modified Macagno's transmission theory, as proposed by Ruol et al. (2013), provides the most suitable analytical method for pile-restrained attenuators. This empirical formula is the only one that incorporates both the width and draft of the attenuator. However, for longer wave periods—leading to larger *X* parameters—Macagno's formula has been found to overestimate the transmission coefficient, thereby underestimating wave reflection. In such cases, the Kreibel et al. formula offers a better fit for experimental data.

Consequently, both methods have been employed in this study, with Kreibel's theory being recommended for cases where *X* exceeds 1, corresponding to wave periods greater than 4 seconds.

It is important to note that the reflection coefficient is not dependent on the incident wave height but rather on the incident wave period (or wavelength). Given that vessel wake waves exhibit varying wave periods, the period corresponding to the maximum amplitude wave has been used for analysis.

The reflection coefficient has been calculated using an energy balance where $K_t^2 + K_r^2 + Losses = 1$. A conservative loss percentage of 5% was adopted.

Only a two-dimensional analysis has been undertaken considering a perpendicular wave impacting the attenuator.

4.3 Results summary

The reflection coefficient for the proposed attenuator geometry was calculated for the range of probable wave periods using both Ruol et al's and Kriebel et al's methods and is presented in Figure 4-3. It is recommended to adopt Ruol's coefficient where incident waves have a period of 3.5-4s or less.

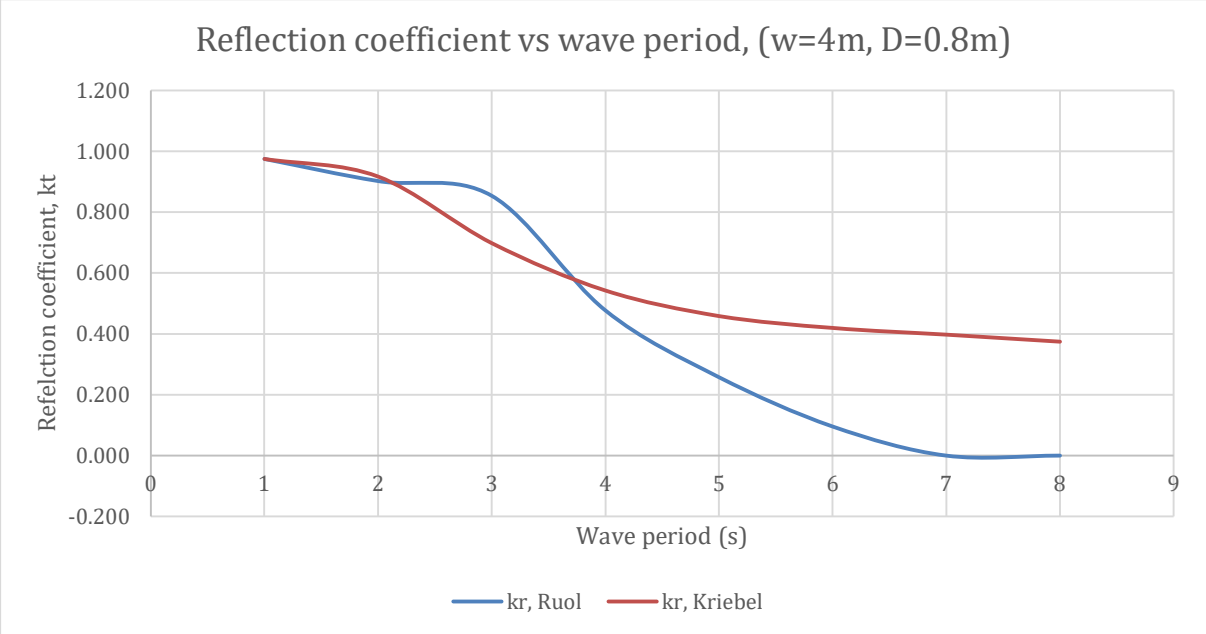

Figure 4-3 Proposed attenuator wave reflection coefficient vs incident wave period

As illustrated above, the effectiveness of the proposed attenuator to reduce wave energy where the wave period is above around 3s is low.

Reflected waves can interact with incident waves of a similar period to setup a standing wave which is what is observed as the 'confused' or 'choppy' sea state within one to two wavelengths of the structure.

Based on the calculated reflection coefficients, the maximum possible standing wave height adjacent to the attenuator for the 3 design vessels is presented below (Table 4-1).

Table 4-1 Reflected and total wave heights adjacent to attenuator

Vessel category	Nominal vessel	Incident wave height, Hi (m)	Period, P (s)	Reflected wave height, Hr (m)	Total wave height, Htot (m)
Small recreational	Haines Hunter Patriot 680	0.23	2.1	0.21	0.43
Large recreational	Riviera Offshore Express 48	0.48	4.2	0.25	0.73
Commercial ferry	Starflyte Express	0.32	6.3	0.13	0.45

In practice, for wake waves the maximum total wave height will be somewhat less as only a single wave crest of a wake wave train typically achieves the maximum amplitude.

Where the reflected and incident waves are out of phase, the resulting wave will be smaller than the incident wave.

4.4 Existing layout wave reflections

The existing marina layout does not have specific attenuator structures along the outside of the marina but does include floating pontoons throughout in smilar form to the proposed redevelopment. Larger vessels are moored along the outside of the jetty T heads. These boats can tolerate a more severe wave climate than smaller vessels but also act to reduce the wave energy that propagates through to the inner marina, in a similar manner to a wave attenuator. Although these berths cannot be relied upon to be filled at all times, when they are occupied the impact on the adjacent wave climate (and consequently on paddlers/watercraft nearby) can be examined.

From AS3962 (Marina Design), the average draft for a 20m power boat is 1.4m (deeper for yachts) and the average beam is around 5m. Attenuation coefficients for varying wave periods have been calculated using the method described in Section 4.2 for a typical 20m power boat, noting that the additional added mass term (0.35x attenuator width) was omitted due to typical hull shape. A nominal 5% energy loss was incorporated to match the attenuator analysis, although in practice losses from the moored vessel system are likely to be higher.

Table 4-2 Vessel vs attenuator calculated reflection coefficients (5% losses)

Wave period (s)	Kr (vessel)	Kr (attenuator)	Difference (%)
1	0.975	0.975	0.0
2	0.972	0.902	7.2
3	0.872	0.854	2.1
4	0.620	0.477	23.1
5	0.620	0.459	26.0
6	0.580	0.419	27.8
7	0.557	0.397	28.6
8	0.542	0.374	31.0

For wake waves with a period of 4s or greater (larger vessels at faster speeds), the 20m moored vessel would typically result in a higher reflected wave than the proposed attenuator, even after allowing for the wake wave decay from the nominal 10m additional distance from the sailing line.

5. Discussion

5.1 Wave attenuators – reflection vs transmission

Wave attenuators are used to reduce wave energy in the lee of the attenuator. Incident wave energy is either transmitted through (under) the attenuator, reflected back or lost/dissipated through friction or turbulence. Typically, the losses are relatively small and have been omitted for this analysis.

For floating attenuators, the attenuation properties are primarily linked to the width and draft of the attenuator. As they only sit relatively shallow in the water, floating attenuators only influence the upper reaches of the water column and are thus much more effective for short period wind waves than longer period swell or vessel wake waves.

Where wave energy is reflected, reflected waves interact with new incoming waves and can cause a choppy or confused sea state immediately adjacent to the attenuator. This is visible in Figure 5-1. This interaction is difficult to model numerically but typically becomes minimal from around 2 wavelengths away from the structure.

Figure 5-1 Fixed attenuator showing incident, reflected and transmitted wind waves

Wake waves only occur over a relatively short burst and the impact of any wave reflection would be limited to a short duration (most likely 10-30s) after the incident wake reaches the site (Figure 5-2).

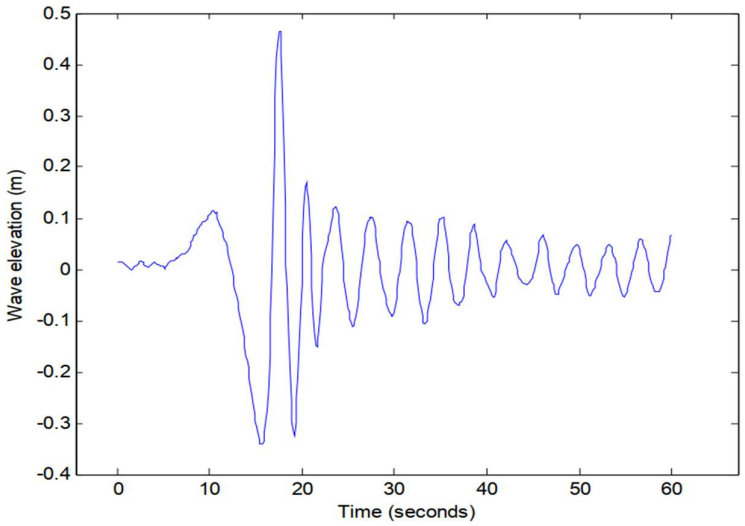

Figure 5-2 Typical vessel (Riviera Offshore Express 48) wake wave train (Source: Swan River Trust)

5.2 Incident wave angle

Given the proposed attenuator layout is approximately parallel to the typical sailing line, wake waves are likely to interact with the attenuator on an oblique angle (in the order of 20 degrees for a diverging wake wave). Waves are then reflected also on an oblique angle and will tend to run parallel to the structure. Although the incident and reflected waves still interact causing some choppiness over around 2 wavelengths distance, the transverse distance this impact is seen is considerably smaller due to the wave angle.

5.3 Comparison with existing marina layout

Given the potential for vessels to transit marginally closer to the marina extents under the proposed arrangement, the impact of the proposed layout on the wave climate in the near vicinity of the attenuators has warranted further investigation. Where there are gaps between the attenuators (approximately 40% of the total length), wave energy passes the attenuators with zero reflection and will likely then be absorbed within the marina or through wave breaking if it reaches the shore.

Based on the analysis of wave reflection coefficients, the typical use of the outside of the existing pontoon T heads to moor larger vessels would result in similar (or worse) wake wave reflection than the proposed arrangement.

5.4 Wave conditions for paddling

Pier 21 has advised that kayakers may paddle between the marina boundary and the navigation channel. Where waves impact a reflective structure, the resulting wave conditions may prove challenging for inexperienced paddlers. Conversely, more experienced paddlers may seek out these areas or even paddle directly alongside a transiting vessel to maximise craft speed and challenge themselves technically.

There are no governing standards regarding recommended wave criteria for recreational paddling and an assessment of conditions is generally best made in comparison to other paddling environments encountered in the area. When compared to the existing marina layout, with vessels typically berthed against the outside of the marina T heads, wave conditions within a transverse distance of up to 25m from the pontoons are likely to be very similar in nature.

It is acknowledged that paddling between any marina and a busy navigation channel may be daunting for some paddlers, and it is recommended that education and clear signage be considered to assist them in choosing an appropriate route. This approach would apply equally to the existing and proposed marina layouts. The channel has a broad width for navigating vessels or paddlers and as such options are available for navigators (including paddlers) to maintain a safe clear distance away from the proposed marina or operating vessels navigating in this area.

6. Conclusion

Due to the proximity of Pier 21 to vessel traffic along the Swan River, the impact of the proposed floating wave attenuators on the wave climate adjacent to the structures has been investigated in more detail. Design vessel parameters have been established and the corresponding likely maximum wake wave heights at the proposed site (both with and without wave attenuators) have been determined. Typical wake heights up to H=0.5m may be experienced at the site, with a range of wave periods up to a maximum of around 6 seconds.

Under short-period wave conditions, wave energy is reflected back adjacent to the marina however this has been demonstrated to be no worse than is likely with the existing marina arrangement.

For longer period wake waves such as those generated by the Rottnest Ferry (greater than 4s), the proposed attenuator geometry would transmit around 80% of the incident wave height, resulting in minimal impact to the adjacent wave conditions, with a typical maximum total wave height (incident plus reflected) of H=0.5m.

The proposed attenuators are only likely to influence the incident wake wave climate in the immediate vicinity of the structures (10-25m), with the resulting confused sea state settling down rapidly once the wake wave train has passed.

Within the navigation channel the impact changing the marina from the existing arrangement (larger vessels moored outside the T head) to the proposed arrangement (wave attenuator units as the outer T heads with vessels moored on the leeward side) would not result in a measurable change in the wave climate or conditions.

ecoscape

Pier 21 Marina Visual Impact Assessment

Pier 21 Marina

June 2025

Ecoscape offices are located in Walyalup, on the traditional lands of the Whadjuk people of the Noongar nation.

We work on many lands and acknowledge the Traditional Owners of Country throughout Australia and their continuing connection to land, sea and community.
We pay our respects to their cultures, ancestors and Elders.

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Prepared for Pier 21 Marina

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Contents

Figures

Tables

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- Simon Rodrigues, Director, Rodrigues Bodycoat Architects

Executive summary

Pier 21 Marina Pty Ltd engaged Ecoscape to prepare a short form report to describe the potential visual impacts of the redevelopment of the Pier 21 Marina to public users of the river, as requested by the Department of Biodiversity, Conservation and Attractions (DBCA).

The development proposes to upgrade the existing jetty infrastructure due to changes in Australian Standards. In summary the redevelopment proposes to:

- consolidate the marina into a smaller footprint along the foreshore (approx. 36m on northern boundary and 39m on southern boundary)
- reduce the splay of the jetties from the most northern to southern tip from 438m to 371m (approx.15% reduction)
- increase the size of the fairway corridors due to changes in Australian Standards.

The DBCA requested a visual impact assessment from public viewing locations along the river foreshore. The approximate locations of the view locations assessed are shown in **Figure 1**.

View Locations

- View Location A: Zephyr Café
- View Location B: Pier 21 Marina North
- View Location C: Pier 21 Marina South

Figure 1: Project and view locations

Visual landscape evaluation

Ecoscape applied the methodology described in the *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design* (WAPC, 2007) to undertake the visual impact assessment (VIA) of the proposed development. The manual specifies a two-stage process to the visual assessment:

1. visual landscape evaluation
2. visual impact assessment.

Ecoscape used a combination of desktop analysis and site investigations to evaluate the landscape surrounding the proposed Pier 21 Marina development.

Landscape character analysis

As part of the visual impact evaluation, Ecoscape undertook a landscape character analysis of the existing landscape character surrounding Pier 21 Marina. This process identified four distinct Landscape Character Units (LCU) that comprise a geographic area sharing common characteristics such as landform, vegetation, waterform and cultural land use patterns relevant to human interaction and experience. The LCUs identified are:

- **North Fremantle parkland foreshore LCU** surrounding the Pier 21 Marina.
- **North Fremantle cliff LCU** north of Pier 21 Marina surrounding Rocky Bay.
- **East Fremantle parkland beach LCU** northeast of the proposed development, on the opposite side of the river.
- **East Fremantle seawall LCU** east and southeast of the proposed development, on the opposite side of the river.

Landscape values

All LCUs contained several of the most preferred landscape characteristics for built environments, as identified by WAPC (2007). These are recognised as contributing to the value of a visual landscape, and commonly included:

- presence of trees, greenery, parks and gardens
- presence of water bodies
- well maintained gardens (native and exotic)
- design which takes account of landscape features, vegetation and landform.

View significance

All LCUs were determined to have Significance level 2: Regional significance. They commonly contained several elements that contribute to public sensitivity, including:

- recreation, conservation, cultural or scenic sites, areas, viewpoint, and lookouts of regional significance
- navigable waterways of regional recreation significance
- walk paths of regional significance
- views of regional importance.

Visual management objective

The aim of Visual Management Objectives (VMOs) is to provide criteria that enable the assessment of visual impacts for each Landscape Character Unit (LCU).

The ‘Protection and maintenance’ VMO has been assigned to all LCUs within the Study Area as they contain a high degree of scenic amenity and a high level of public use. To meet this objective, proposed development should be planned and designed to have minimal visual impact on landscape character. That is, the proposed development would either be not evident or blending with the existing landscape character.

Visual impact assessment

Photo montage analysis

Photo montages prepared by Rodrigues Bodycoat Architects (RBA) were analysed using visual impact criteria to determine dominant visual elements, which include line, form, colour and texture. The outcome of this analysis is a percentage score that determines the level of visual impact (magnitude of change), either being not visible (not evident), moderately visible (blending) or highly visible (prominent).

To determine the overall impact level or the significance of the impact, the result of the visual impact analysis is combined with the Significance Level and the Visual Management Objective (VMO) of the Study Area.

Visual impact assessment outcomes

The visual impact assessment process indicated that the proposed development is 'blending' with the existing landscape character from all viewpoints assessed, and that the landscape character, view experience and landscape values identified in the visual landscape evaluation are retained.

Therefore, the proposed Pier 21 Marina redevelopment will meet the visual management objective that seeks to protect and maintain the existing visual landscape.

The outcomes of the visual impact assessment are summarised in **Table 1** below.

Table 1: Visual impact assessment outcomes summary

ANTICIPATED VISUAL IMPACT	
View Location 1: Zephyr Café	
Magnitude of visual impact	Blending
Anticipated visual change	The photo montage analysis has revealed that the proposed Pier 21 Marina development is visible but is blending with the existing character of the site. Notable visual change from the existing conditions is difficult to discern at this distance from the marina (~250 metres).
Visual Impact Rating	Level 2 - Moderate
Response to Visual Management Objectives	The development is compatible with the 'protection and maintenance' VMO assigned to this view. The landscape character, view experience and landscape values identified in the visual landscape evaluation are retained.
View Location 2: Pier 21 Marina North	
Magnitude of visual impact	Blending
Anticipated visual change	The photo montage analysis has revealed that some of aspects of the proposed Pier 21 Marina development (form, colour) are blending with the existing character of the site, although texture has the potential to be prominent.
Visual Impact Rating	Level 2

Response to Visual Management Objectives	Further resolution of the proposed jetty form and texture is required to ensure the development is compatible with the 'protection and maintenance' VMO assigned to this view. However, the overall visual impact rating has been determined to be 'Level 2' because landscape character, view experience and landscape values identified in the visual landscape evaluation are largely retained.
View Location 3: Pier 21 Marina South	
Magnitude of visual impact	Blending
Anticipated visual change	The photo montage analysis has revealed that the proposed Pier 21 Marina development is blending with the existing character of the site from this view location.
Visual Impact Rating	Level 2
Response to Visual Management Objectives	The development is compatible with the 'protection and maintenance' VMO assigned to this view. The landscape character, view experience and landscape values identified in the visual landscape evaluation are retained. The removal of the electrical cabinets and power domes eliminates one of the least preferred landscape characteristics from the view. Further resolution of the proposed jetty texture is recommended to ensure the development is compatible with the 'protection and maintenance' VMO assigned to this view.

Acronyms and abbreviations

Table 2: Acronyms and abbreviations

Acronym	
CALM	Western Australian Department of Conservation and Land Management (1985-2006, now DBCA)
DBCA	Western Australian Department of Biodiversity, Conservation and Attractions
DPaW	Western Australian Department of Parks and Wildlife (2013-2017, now DBCA)
EPA	Environmental Protection Authority
EP Act	Environmental Protection Act 1986
Ecoscape	Ecoscape (Australia) Pty Ltd
LCT	Landscape Character Type
LCU	Landscape Character Unit
m	metre/metres
RBA	Rodrigues Bodycoat Architects
VAC	Visual Absorbance Capacity
VIA	Visual Impact Assessment
VLE	Visual Landscape Evaluation
VMO	Visual Management Objective
WAPC	Western Australian Planning Commission

1 Introduction

1.1 Project scope

Pier 21 Marina Pty Ltd engaged Ecoscape to prepare a visual impact assessment report to describe the potential visual impacts of the redevelopment of the Pier 21 Marina to public users of the river foreshore. This engagement was made at the request of the Department of Biodiversity, Conservation and Attractions (DBCA) to ensure visual impacts were considered in the development.

1.2 Project description

The Pier 21 development proposes to replace the existing jetty infrastructure located on the site due to changes in Australian Standards. The redevelopment proposes to:

- Reduce the number of jetties from 7 to 6, and consolidate the marina into a smaller foreshore footprint along the foreshore by reducing the lease area at the northern and southern ends and increasing width east into the river.
- reduce the splay of the jetties from the most northern to southern tip from 438m to 371m (approx.15% reduction)
- increase the size of the fairway corridors due to changes in Australian Standards.

Refer to **Appendix 3** for the proposed Pier 21 Marina development plan.

1.3 Study area

The Pier 21 Marina is located on the North Fremantle foreshore, approximately 600m north of Stirling Bridge.

The Study Area for visual impact assessment encompasses publicly accessible areas from which the Pier 21 Marina can be seen. This includes views from the North Fremantle foreshore in close proximity to the marina, as well as views from the elevated landform around Rocky Bay and across the river from the East Fremantle foreshore (refer **Figure 2**).

Views from the river or on private property have not been considered in this assessment.

Figure 2: Study area

2 Planning context

2.1 State policy

2.1.1 Environmental Factor Guideline: Social Surroundings (EPA, 2023)

The EPA's objective for the social surroundings environmental factor is, *to protect social surroundings from significant harm.*

For social surroundings to be considered in Environmental Impact Assessment (EIA) there must be there must be a clear direct link between a proposal or scheme's impact on the physical or biological surroundings and the subsequent effect on a person's aesthetic, cultural, economic or other social surroundings.

Furthermore, for the EPA to consider social surroundings as a factor in EIA, a proposal's or scheme's impacts on the physical or biological environment, must directly and significantly affect or be affected by those social surroundings.

The EPA is also required to consider potential impacts to Aboriginal cultural heritage (ACH) values which includes *significant visual impacts to ACH cultural landscapes.*

The guideline recognises that *natural landscapes and views often contribute to visual amenity, such as areas of high heritage, cultural or social significance due to their natural features or scenic quality. Although, amenity values can be highly subjective.*

The EPA recognises that development activities may impact aesthetic values such as:

- large scale quarry or mining activities on landscapes of significant aesthetic value
- major tourism or other developments in or adjacent to natural areas with significant aesthetic values.
- The EPA may require information from the proponent where there is the potential to significantly impact the social surroundings, in the case of visual amenity a landscape and visual impact assessment may be required.

2.1.2 State Planning Policy 2.10 Swan-Canning River system (2006)

This policy is currently being reviewed by the WAPC and will be replaced by SPP 2.9 Planning for Water Guidelines. The objectives of this policy are to:

- provide a regional framework for the preparation of precinct plans based on the precincts identified in the Swan River System Landscape Description
- provide a context for consistent and integrated planning and decision making in relation to the river
- ensure that activities, land use and development maintain and enhance the health, amenity and landscape values of the river, including its recreational and scenic values.

The policy contains guiding principles and policies which should be considered when considering development proposals along the river, those relevant to visual amenity are:

7.1.1 maintain the river and its setting as a community resource

7.1.3 ensure public access to the river is maintained and enhanced

7.1.4 development should avoid restricting or negatively impacting public views of the river

7.1.9 maintain sense of place

7.3.1 protect and enhance the natural and cultural heritage values of the river

7.4.1 development should maintain and enhance the quality and setting of the river

7.4.7 the following will be considered with regard to development proposals:

- the extent to which the visual landscape character of the river is maintained and improved

- the extent to which views to and from the river are maintained and improved.

2.2 Local policy

2.2.1 LPP Design Guideline 7 – North Fremantle Foreshore Plan (City of Fremantle, 2003)

The objective of this LPP DG7 is to guide land use through a coordinated planning framework and provide guidance to landowners, developers and agencies having an interest in the river and foreshore from Queen Victoria Street (the old traffic bridge) eastwards, around to the boundary between Fremantle and Mosman Park and the land immediately adjacent to it.

LPP DG7 provides general requirements for development occurring within the policy area, including:

- To develop and maintain a continuous public access route along the North Fremantle river foreshore, where possible in the form of a dual use path, related as closely as possible to the waterfront whilst ensuring the design, materials used and setting of the facility harmonise with the environment.
- To protect and increase the potential for public use of the foreshore beyond simple access at appropriate locations, e.g. for swimming or passive recreation.
- To enhance the environmental quality of the area by restoring and preserving natural areas of foreshore, including those areas which may be sensitive to over intensive use.
- To ensure that compatibility of the use of foreshore land and adjacent water area.
- To ensure that development incorporates the natural advantages of foreshore sites for the benefit of all potential users.
- To ensure that development is in a form which takes account of notable views and vistas both from the landward site within North Fremantle and Mosman Park, and from the river and opposite banks.
- To identify possible areas of change beyond the immediate context of the foreshore, and to acknowledge those possibilities in developing a plan for the foreshore area.
- To ensure that development over water areas takes account of navigational requirements, public access, traffic generation and flood levels.

The proposed Pier 21 development is located within Area 4 and 5 as defined by LPP DG7 (refer **Figure 3**). The requirements for these areas are outlined below.

Area 4

The existing public access route through the site should be protected; the public should be aware of its location and availability, and signposting of the site should, therefore, be considered.

Although some marine-related industrial activity will continue in this area, it will be gradually phased out.

Any further development in this area should only be allowed after careful consideration of its possible impact on views over and between buildings from areas uphill, the river and foreshore, adequacy of onsite parking provision and the effects of increased traffic generation on adjacent streets.

Area 5

A public access route along the water edge should be established and maintained.

On redevelopment, future use should be mainly medium density residential with a limit of three storeys. A relaxation of the height requirements may be permitted if the proposed development will not have an adverse effect on the amenity and character of the area and is consistent with the objectives of the area.

Commercial use may be appropriate on the eastern area of the site, provided a foreshore reserve of sufficient size for maintenance of foreshore vegetation, a stable bank and public access is established.

The form of development should be groups of buildings positioned so that river views are possible between and over them.

Notwithstanding the existence of the Water Police facility on Harvest Road, the existing public beach at the end of Harvest Road should be protected and enhanced, and views from Harvest Road and John Street to the river should be safeguarded.

As vehicle access to this area can only be obtained via fairly narrow and mainly residential local streets, access, traffic generation and onsite parking provision should be carefully considered in any development proposal.

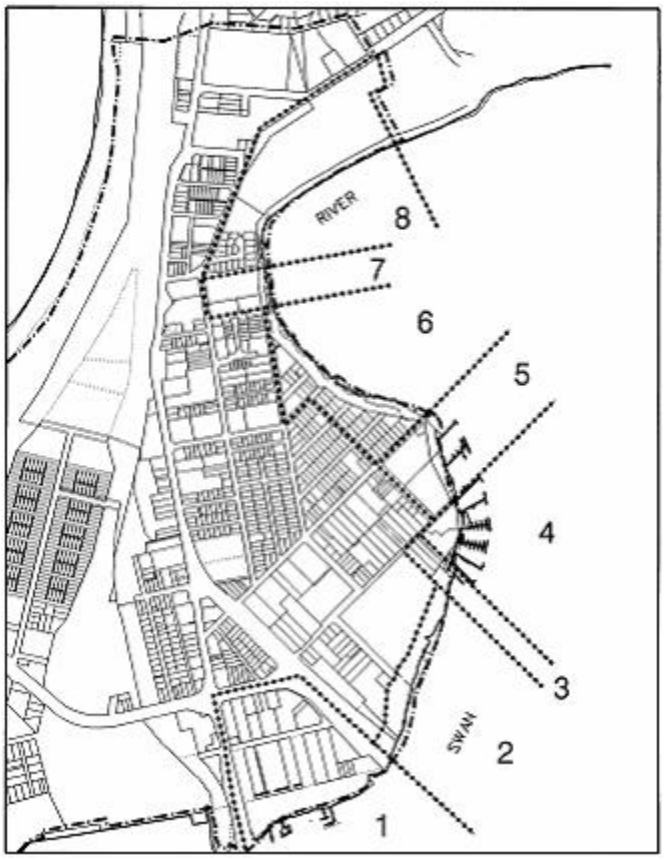

Figure 3: LPP DG7 Areas (City of Fremantle, 2003)

2.3 Guidelines for visual impact assessment in Western Australia

2.3.1 Visual Landscape Planning in Western Australia 2007

This comprehensive manual has been developed by the WAPC (2007) to help public and private sector planners address visual landscape in the planning process. The manual explains the fundamental planning tools of visual landscape evaluation and visual impact assessment. It provides guidelines for siting and design in relation to a range of landscape types and land uses. It has been developed through extensive research, workshops and also draws on previous visual methodologies. The manual has been developed specifically for Western Australian landscapes and presents a systematic method for undertaking visual assessments in Western Australia. The process of assessing the visual landscape set out in this manual is generally consistent with other methodologies, however it provides added detail on landscape preferences and specific land uses.

The manual also provides guidance on character preference indicators for urban environments (**Appendix 1**) and significance levels for visual receptors (**Appendix 2**).

2.3.2 Other visual assessment guidelines

The following documents provide additional guidance on a suitable framework for assessing visual impact:

Guidance Note for Landscape and Visual Assessment, Australian Institute of Landscape Architects, 2018 provides guidance aimed at landscape architects which sets out minimum requirements and an accepted set of assessment methods.

Guidelines for Landscape and Visual Impact Assessment (GLVIA), Third Edition (2013) prepared by the Landscape Institute and Institute of Environmental Management and Assessment. These guidelines provide detailed advice on the process of assessing the landscape and visual effects of developments and their significance, as well as cumulative effects.

2.3.3 Landscape assessments

The following documents provide guidance on landscape assessment relevant to the Study Area.

2.3.3.1 Reading the Remote: Landscape Characters of Western Australia (CALM, 1994)

A Landscape Study undertaken by the former Department of Conservation and Land Management (CALM, 1994) classified Western Australian landscapes into broad Character Types. The main objective was to provide a reference guide to assess the representation and significance of WA's visual landscape to develop appropriate planning and design guidelines and polices to protect and enhance the visual landscape. The term landscape is defined as a combination of physical and cultural features. A Landscape Character Type (LCT) is where there is a common combination of these characteristics such as landform, waterform, vegetation and land use (CALM, 1994).

The Study Area is located within the Swan Coastal Plain Landscape Character Type, stretching from Moore River to Geographe Bay and extending east to the foothills of the Darling Plateau.

The defining feature of the Study Area is the Swan River. The area around Pier 21 is characterised by "dissected calcareous dunes featuring rugged limestone cliffs, caves and outcrops". These are most evident in the cliffs surrounding Rocky Bay to the north of the site.

Both the Swan River and limestone cliffs north of the site are described as having a high scenic quality.

Very little of the original fringing vegetation remains on the site, which is characterised by managed garden beds and exotic species.

2.3.3.2 Precinct 2: Fremantle Railway Bridge to Point Walter Reserve and Chidley Point (DPaW, 2011)

The Department of Parks and Wildlife (DPaW) defines the Precinct 2 as the section of estuary between the Fremantle Railway Bridge to Point Walter Reserve and to Chidley Point. The report notes that despite the dramatic modification that characterises the current landscape, there are areas which retain high scenic, recreation and conservation value. In particular, the riverform of the Swan River is an attractive feature as it winds between high limestone cliffs and low-lying sandy embankments.

The precinct descriptions contain several statements relevant to the proposed development and visual amenity of the Study Area, including:

- The main commercial activities found on the precinct's foreshore area include restaurants and cafes. There are commercial marine activities also located along the Point Preston and North Fremantle foreshores, including boat building facilities and marinas.
- Lawn and parkland areas occur along Riverside Road, North Fremantle, Preston Point, the ridge of Rocky Bay and Campbell Park. These provide visually smooth open areas of green lawn. They attract the viewer's attention due to the visual uniformity of the area. These parkland areas are well maintained and are indicative of their land use. Exotics, such as date palms and pine trees have been evenly planted along the river. They are regular in spacing and height and give the effect of an ordered urban environment.
- The jetties at Pier 21 and other complexes are relatively small and consistent with the river orientated land use.

3 Methodology

3.1 Assessment process

It is recognised by the EPA (2023) that amenity values may be highly subjective, therefore, the WAPC (2007) methodology had been adopted to provide a clear and systematic approach to assessing the visual landscape. The WAPC (2007) specifies a two-stage process to the visual assessment:

1. visual landscape evaluation

2. visual impact assessment.

The Visual Landscape Evaluation (VLE) stage is undertaken to understand the context of the project and the surrounding landscape. It is also undertaken to set objectives for managing the visual landscape character. The Visual Impact Assessment (VIA) describes the potential impacts in context of the landscape evaluation. The stages of the assessment are outlined below:

- A description of the proposed project and visual elements of proposed infrastructure (Section 1.2)
- Landscape Character Analysis: The identification and evaluation of the existing landscape and Landscape Character Units based on desktop and site analysis (Section 4.4)
- View Experience: The assessment of viewing locations, view experience and valued landscape characteristics to identify appropriate visual management objectives for the Study Area for the purpose of assessing visual impacts (Section 4.4)
- Visual Management Objectives: used as criteria for assessing potential visual impacts on the landscape (Section 5)
- Visual Impact Analysis: an assessment of viewsheds and photo montages to identify the level of visibility and potential visual impacts on the landscape (Section 6).

3.2 Landscape Values

Visual quality is described in *Reading the Remote, Landscape Characters of Western Australia* (CALM, 1994) as “the relative visual character of a landscape, expressed as an overall visual impression or value held by society after perceiving and area of land / water.” CALM (1994) identified that visual quality increases with greater:

- naturalness value, i.e. landscapes that have minimal modification and where natural features are prominent;
- topographic relief and ruggedness; and
- vegetation and landscape diversity.

The *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design* (WAPC, 2007) identified key character indicators that can be used as a basis for classifying the landscape into two preference categories; ‘most’ preferred and ‘least’ preferred landscapes. These preference categories were established for natural, rural and built landscapes. All landscape character units described above fall within the ‘built’ landscapes category for preference indicators.

‘Most’ preferred characteristics are defined as landscape features that are highly valued by the community and contribute to the visual character. ‘Least’ preferred are features not valued by the community and detract from the visual character (WAPC, 2007). The preference indicators for built landscapes are summarised in **Appendix 1**.

3.3 Assessment criteria

To assess visual impact, a visual landscape evaluation must be undertaken to understand the landscape values of an area and the significance level of viewing locations. The Landscape Institute (2013) developed criteria to determine the level of impact which were based on landscape values and viewer sensitivity. These impact levels are based on:

- Visibility rating which relates to the magnitude of change and the visual prominence of the development
- Significance Level which refers to the significance of the viewing location and the degree of public sensitivity to change
- Visual Management Objective (VMO) which reflects landscape values and public sensitivity.

These assessment criteria are further discussed below.

3.3.1 Visibility rating

The visibility rating is identified through the analysis of photo montages (Section 6). The visibility of a development is categorised into three levels, outlined in **Table 3** below:

Table 3: Visibility rating

Visibility Rating	Description
Prominent	The development is a dominant feature in the field of view and contrasts with the surrounding landscape. Subsequently there is a significant change to the view experience and may also change the landscape character depending on the nature of the development.
Blending	The development is visible but does not dominant the view or draw attention to itself, visual elements of the development do not contrast with the surrounding landscape.
None	The development is not visible.

3.3.2 Significance level

Significance level refers to the level of use of an area which is outlined in **Appendix 2**. WAPC (2007) notes that significance of a view increases with:

- importance of views, including type, features and rarity
- volume of use of roads, trails and navigable waterways
- degree of sensitivity of viewers; those who are more likely to be more sensitive include wilderness users, other recreational users, tourists, people who choose to live in an area because of its landscape character and views (e.g. assessed by noting how vocal observers are about specific travel routes or use areas, indicated in letters, protests etc.)
- degree to which experiencing the landscape is integral to enjoyment of a travel route or site, i.e. Is it the focus of the use, as in recreational use, or just incidental, as is more likely with people using a route to work?
- length of duration of a view; range could include glimpses from a high-speed road to longer duration views obtained from roads used for sightseeing or from recreation sites and lookouts and very long and frequent views from the main living areas of homes.

Significance is categorised into three levels, outlined in **Table 4** below:

Table 4: Significance level

Significance Level	Description
S1	High use areas such as State Highways, designated tourist routes and sites, designated recreation sites and trails of national or state significance, residential areas.
S2	Moderate use areas such as main roads with moderate vehicle use (sealed or unsealed), recreation sites and trails of regional or high local significance.
S3	Low use areas, locally significance roads or tracks, locally significant recreation sites and trails.

3.3.3 Visual management objectives

Visual Management Objectives (VMOs) are assigned to manage the visual landscape. A proposed development is assessed against these VMOs to identify if the visual change will be appropriate for the landscape setting. The VMOs developed by the WAPC (2007) are listed in **Table 5**.

Table 5: Visual management objectives (WAPC, 2007)

VMO	Description
Protection and Maintenance	This objective is the maximum retention of the existing visual character and applies to highly valued landscapes.
Best Practice Siting and Design	This is the baseline objective for all landscapes, therefore a prominent impact may not meet this objective. Mitigation strategies may deem the impact acceptable such as: • the application of practical and sensitive siting and design techniques • retaining dominant landscape features and characteristics • enhancing or restoring landscape features.
Restoration and Enhancement	This objective applies to degraded landscapes that require rehabilitation to restore visual amenity. Enhancement may also refer to identifying opportunities to improve key views e.g. providing roadside lookouts to take advantage of a scenic view, clearing overgrown vegetation to enhance a view corridor etc.

3.4 Visual impact analysis

The visual impact level matrix (**Table 5**) combines the assessed visual criteria to determine the level of impact a proposed development may have on the visual character of a landscape. The resulting visual impact levels (**Table 7)** been developed by Ecoscape to reflect current assessment guidelines with the aim of providing a clear interpretation of visual impact.

The visual impact level matrix has been developed conservatively and should be used as a guide for further investigation and discussion of the acceptability of impacts with stakeholders, particularly if viewpoints are identified as identified as a Level 1 impact.

Table 6: Visual impact level matrix

Visibility rating		Prominent			Blending			Not Visible
Significance level		S1	S2	S3	S1	S2	S3	S1-S3
Visual Management Objective	Protection and Maintenance	L1	L1	L1	L2	L2	L2	No impact
	Best Practice Siting and Design	L1	L2	L2	L3	L3	L3	No impact
	Restoration and Enhancement	L2	L2	L2	L3	L3	L3	No impact
		VISUAL IMPACT LEVEL						

Table 7: Visual impact levels

Impact Level	Description
L1	A Level 1 impact occurs where the proposed development is 'prominent' at all view locations that have been assigned the Protection and Maintenance VMO and at Significance Level 1 view locations that have been assigned the Best Practice Siting and Design VMO. The visual impact is considered a change that may not adhere to the assigned VMOs as the development is a dominant feature that contrasts with the surrounding landscape. Subsequently, a Level 1 impact results in an obvious change to the view any may also impact and alter key views and landscape character.
L2	A Level 2 impact occurs where the proposed development is visible but not dominant i.e. 'blending' for landscapes and views that have been assigned a VMO of Protection and Maintenance. A Level 2 impact also occurs where proposed development is visually prominent from view locations that are lower in sensitivity i.e. Significance Level 2 and 3 sites that have been assigned the Best Practice Siting and Design VMO. The impact may not adhere to this VMO depending on the nature of the development. A Level 2 impact also occurs where proposed development is visually prominent from view locations that have been assigned the Restoration and Enhancement VMO.
L3	The visual impact is unlikely to be at variance with the VMO as the development is not a dominant feature in the view but blends in with the landscape setting. It is assumed that 'blending' developments are more likely to meet the Best Practice Siting and Design VMO and the Restoration and Enhancement VMO.
None	The development is not visible, therefore no visual impact to landscape character or view experience is expected.

4 Landscape character analysis

4.1 Site analysis

Ecoscape undertook a site analysis on 8 May 2025 to assess the landscape character and view experience from the foreshore areas surrounding the project. The main purpose was to assess the view experience for public users of the foreshore precinct within the Study Area and to identify potential impacts to view experience resulting from the redevelopment of the marina. Photographs were taken from public viewpoints along with notes on the landscape character, view experience and landscape values.

4.2 Visual terminology

The visual landscape of the Study Area was described using terminology that have been adapted from CALM (1994), WAPC (2007) and The Landscape Institute (2013).

Visual terminology such as line, form, colour and texture are used to assist in describing landscape character (**Figure 4**). This description allows for the comparison of the visual elements of a proposed development with the surrounding landscape to assist in the visual impact analysis.

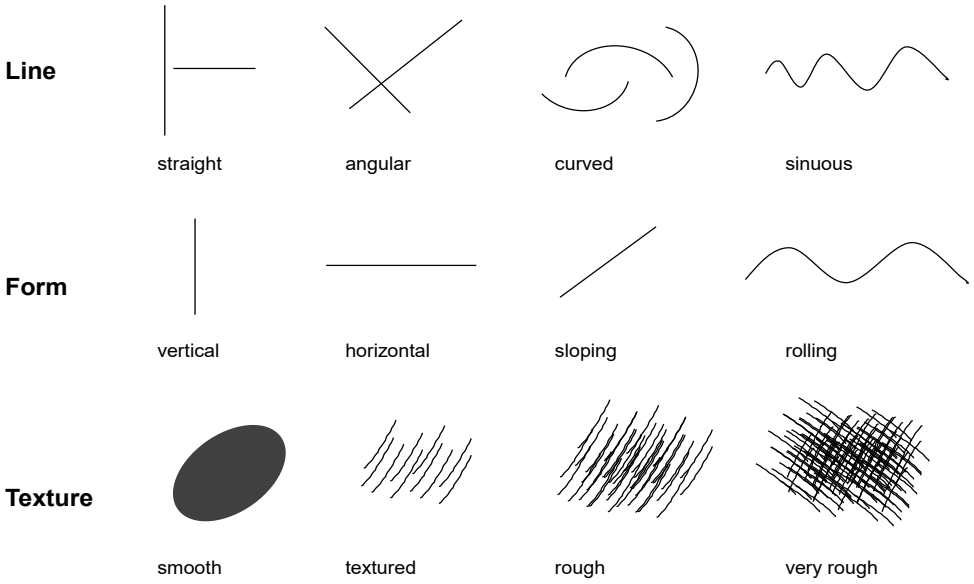

Figure 4: Visual terminology to describe landscape character (CALM 1994)

4.3 Landscape character type

The purpose of characterising the landscape for a visual impact assessment is to understand the visual setting of the landscape surrounding the proposed Project to determine if the proposed infrastructure will visually fit within the landscape. This section documents how the landscape is viewed and valued, both of which are related to the community's 'sense of place'.

The way a landscape is perceived will differ amongst observers, but general valued characteristics can be categorised from the extensive desktop research undertaken by CALM (1994) and WAPC (2007). The Pier 21 Marina and surrounding landscape occurs within the Swan Coastal Plain Landscape Character Type (LCT) that encompasses the area west of the Darling Scarp from Moore River to Geographe Bay.

The Swan Coastal Plain LCT varies greatly in character and has been extensively modified by human activity, so more detailed Landscape Character Units have been defined for the Study area.

4.4 Landscape character units

A Landscape Character Unit (LCU) is a smaller unit than a Landscape Character Type (LCT). While the LCT has common characteristics at a regional scale, there will be variations within an LCT that can be identified at a local scale. An LCU is a geographic area sharing common characteristics such as landform, vegetation, waterform and cultural land use patterns relevant to human interaction and experience.

The landscape character of the Study Area is complex, combining natural landscapes with built forms. Four LCU have been identified within the Study Area:

- **North Fremantle parkland foreshore LCU** surrounding the Pier 21 Marina.
- **North Fremantle cliff LCU** north of Pier 21 Marina surrounding Rocky Bay.
- **East Fremantle parkland beach LCU** northeast of the proposed development, on the opposite side of the river.
- **East Fremantle seawall LCU** east and southeast of the proposed development, on the opposite side of the river.

Refer to **Figure 5** for the extent of the identified Landscape Character Units.

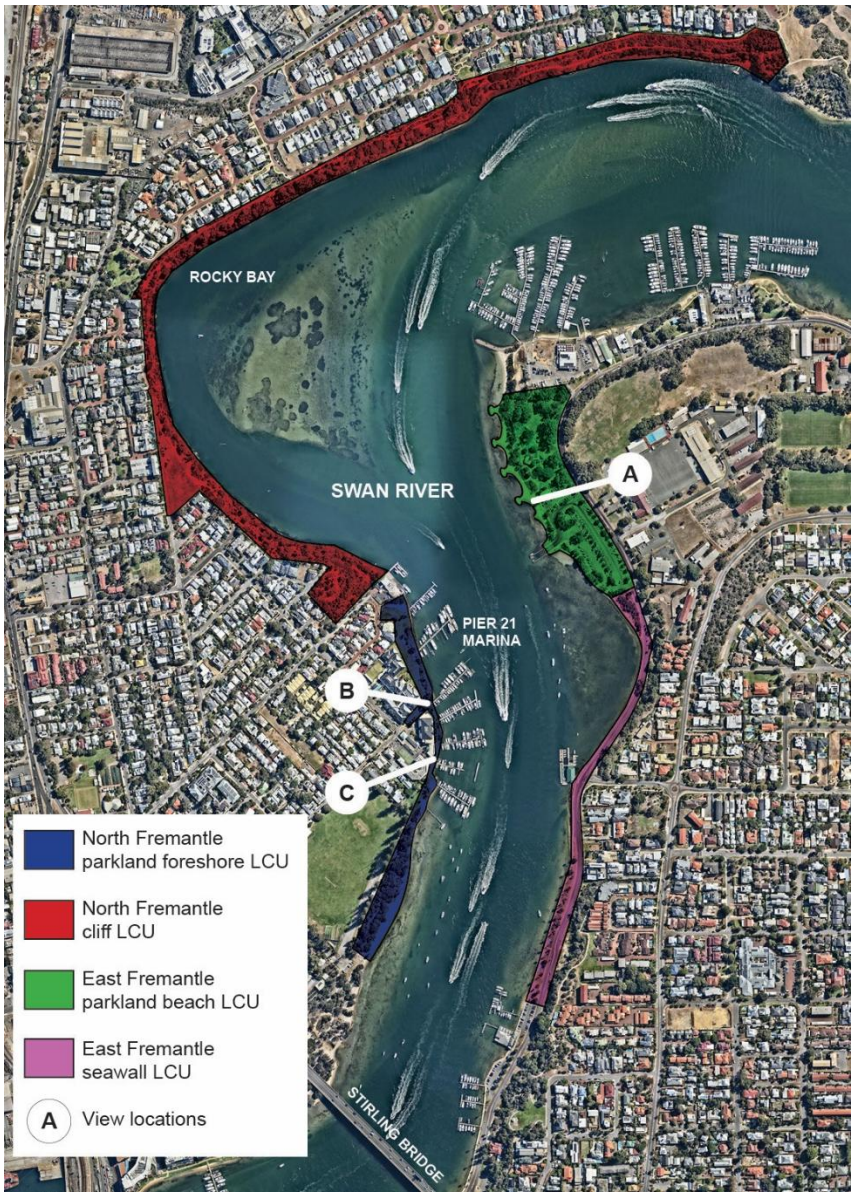

Figure 5: Landscape Character Units

4.4.1 NORTH FREMANTLE PARKLAND FORESHORE LCU

Figure 6: North Fremantle parkland foreshore LCU – view towards Pier 21 Marina and East Fremantle

4.4.1.1 Character description

The North Fremantle parkland foreshore LCU surrounds the Pier 21 Marina.

The landscape character is a complex combination of modified natural landscapes and built form. The dominant natural features are the Swan River and areas of natural foreshore at the southern end of the LCU. Built features include the residential buildings, footpath and managed parklands and gardens, which are constructed within 5 to 30 metres of the shoreline.

Much of the foreshore edge is highly modified with rock armouring, which prevents pedestrian access to the water. The marina itself is the most notable feature on the water, dominating the foreground view from most viewpoints within the LCU. The straight lines, neutral colours and rough textures of the existing timber jetties contrast with the lighter colours and smooth textures of the moored boats.

The topography is generally flat, with a foreshore that gently slopes towards the adjoining Swan River.

4.4.1.2 View significance

The North Fremantle parkland foreshore LCU is designated as Significance level 2: Regional significance. It contains several elements that contribute to its public sensitivity, including:

- recreation and scenic sites of high local significance
- navigable waterways of regional recreation significance
- walk paths of regional significance
- views of regional importance.

4.4.1.3 View experience

Views are integral to the experience of being in the North Fremantle parkland foreshore LCU and may be the main reason that the viewer is visiting the area, e.g. to experience the view.

The area to the north of the North Fremantle parkland foreshore LCU is open parkland bordered by managed vegetation and private residential development. There is some seating provided but otherwise includes little public amenity to encourage visitors to dwell. A concrete pathway provides access south to the Pier 21 Marina.

In front of the Pier 21 Marina the publicly accessible foreshore is minimal, consisting mainly of the pathway with small areas of managed vegetation and a small sandy beach at the southern end of the marina.

South of Pier 21 there is no formal pathway. Public access is either along the sandy shoreline or across the managed turf area adjacent to Gilbert Fraser Reserve. There is no public amenity provided in this area.

Because of the recreational nature of this LCU, most viewers will experience the views at low speed and for an extended duration, e.g. while walking along the shoreline. The Pier 21 Marina is visible in the foreground of most views from this LCU.

The view experience within the North Fremantle parkland foreshore LCU is variable, depending on the viewers location within the LCU. The following view types are present:

- Tightly enclosed – occurs when passing between areas of high shrub planting (**Figure 7**).
- Focal – where surrounding built form creates a focal view to river (**Figure 8**).
- Filtered – views towards the river are filtered through trees and shrubs planted along the foreshore edge (**Figure 9).**
- Broadly enclosed – open views across the river to the East Fremantle foreshore and ridgeline, which restricts long distance views (**Figure 10**).

Figure 7: North Fremantle parkland foreshore LCU - tightly enclosed view between garden beds

Figure 8: North Fremantle parkland foreshore LCU - focal view between residential developments

Figure 9: North Fremantle parkland foreshore LCU - filtered view across managed vegetation

Figure 10: North Fremantle parkland foreshore LCU - broadly enclosed view at southern end of Pier 21

4.4.1.4 Landscape values

The North Fremantle parkland foreshore LCU contains several of the most preferred landscape characteristics for built environments, as identified by WAPC (2007):

- presence of trees, greenery, parks and gardens
- complementary building styles in neighbourhoods
- diverse building styles in neighbourhoods
- presence of water bodies
- well maintained gardens (native and exotic)
- development sites supporting and enhancing the urban context in which they are located
- design which takes account of landscape features, vegetation and landform
- services being underground to reduce cabling and severance of street trees
- presence of community artworks.

The North Fremantle parkland foreshore LCU does not contain any of the least preferred landscape characteristics for built environments.

4.4.2 NORTH FREMANTLE CLIFFS LCU

Figure 11: North Fremantle cliffs LCU – view towards Pier 21 Marina

4.4.2.1 Character description

The North Fremantle cliffs foreshore LCU is located on the elevated foreshore north of the Pier 21 Marina. It is defined by its elevation, which allows sweeping views across the river to the east and southeast.

The rocky limestone cliffside is covered is established native vegetation, creating a rough textured element in the view, contrasting against the relatively consistent texture of the river. The vegetation is generally dark green in colour, punctuated with lighter areas of exposed limestone and contrasting against the blues of the river.

The arc of Rocky Bay bends around towards the jetties of the Fremantle Water Police and the Pier 21 Marina. The horizon line is undulating due to the varying topography and canopy of established trees, both north and south of the river.

4.4.2.2 View significance

The North Fremantle cliffs LCU is designated as Significance level 2: Regional significance. It contains several elements that contribute to its public sensitivity, including:

- recreation, conservation, cultural or scenic sites, areas, viewpoint, and lookouts of regional significance
- navigable waterways of regional recreation significance
- walk paths of regional significance
- views of regional importance.

4.4.2.3 View experience

The elevation of the landform provides a unique viewing experience for people in this area. The height above the river allows for open, expansive views to the east and southeast across the Swan River that are not available elsewhere.

The area is popular for recreation and exercise, and the roads are local-speed local roads. Because of the this, most viewers will experience the views at low speed and for an extended duration, e.g. while walking along the cliff-top pathway.

The view experience within the North Fremantle cliffs LCU is variable, depending on the viewers location within the LCU. The following view type is present:

- Elevated open – elevated views framed by cliffside vegetation (**Figure 12**)
- Elevated open – open views across the river to Pier 21 and the East Fremantle foreshore (**Figure 13**).

Figure 12: North Fremantle cliffs LCU – elevated view east towards Swan Yacht Club

Figure 13: North Fremantle cliffs LCU – elevated open view southeast towards Pier 21

4.4.2.4 Landscape values

The North Fremantle cliffs LCU contains several of the most preferred landscape characteristics for built environments, as identified by WAPC (2007):

- presence of trees, greenery, parks and gardens
- elevated landforms and undulating terrain
- presence of water bodies
- presence of natural rock features (e.g. limestone cliffs, granite outcrops)
- historic features including land uses that strengthen the local urban character
- design which takes account of landscape features, vegetation and landform
- services being underground to reduce cabling and severance of street trees

The North Fremantle cliffs LCU does not contain any of the least preferred landscape characteristics for built environments.

4.4.3 EAST FREMANTLE PARKLAND BEACH LCU

Figure 14: East Fremantle parkland beach – view southwest towards Pier 21

4.4.3.1 Character description

The East Fremantle parkland beach LCU occurs on the foreshore opposite to Pier 21 Marina.

The landscape character is a mix of natural and managed landscapes. The natural elements in the landscape include the sandy foreshore, the Swan River and fringing vegetation, and the parkland of John Tonkin Reserve comprising established trees over a turf understorey. The flat sandy banks transition into the horizontally formed tall vegetation with blended glimpses of built forms.

The built forms include the Zephyr Café and picnic shelters within the park. The forms of these elements is single storey, and the rooflines do not extend above the canopy of the established trees within the park. South of Zephyr Café is the carpark and Leeuwin Boat Ramp, a large expanse of asphalt punctuated by scattered trees that provide shade and greenery to an otherwise uninviting space.

The topography of the area is flat, and the colour palette is generally composed of greens, greys and browns, punctuated by small areas of bright colours in the playgrounds.

4.4.3.2 View significance

The East Fremantle parkland beach LCU is designated as Significance level 2: Regional significance. It contains several elements that contribute to its public sensitivity, including:

- recreation and scenic sites of high local significance
- navigable waterways of regional recreation significance
- walk paths of regional significance
- views of regional importance.

4.4.3.3 View experience

Views are an integral part of the viewer experience in the East Fremantle parkland beach LCU.

The sandy shoreline that defines this LCU has been intentionally created as a swimming area adjacent to John Tonkin Reserve. Views from the shoreline across the river offer unimpeded views and are likely to have a long duration as the viewers engage in recreational activities, e.g. walking and swimming.

The sandy shoreline adjoins John Tonkin Reserve, an established and popular parkland that offers a range of public amenities to visitors including seating, shelters, picnic facilities and play equipment. Like the shoreline, the duration of views is likely to be prolonged because viewers have visited John Tonkin Reserve with the intention of spending time there.

The view experience within the East Fremantle parkland beach LCU depends on the viewers proximity to the shoreline. The following view types are present:

- Filtered – views from the parkland towards Pier 21 are filtered through trees and shrubs planted along the foreshore edge (**Figure 15**).
- Broadly enclosed – views across the river to Pier 21 and the built developments and ridgeline beyond, which restrict long distance views (**Figure 16**).

Figure 15: East Fremantle parkland beach LCU - filtered view from John Tonkin Reserve

Figure 16: East Fremantle parkland beach LCU - broadly enclosed view from shoreline

4.4.3.4 Landscape values

The East Fremantle parkland beach LCU contains several of the most preferred landscape characteristics for built environments, as identified by WAPC (2007):

- presence of trees, greenery, parks and gardens
- built developments that do not impinge on dominant natural features
- presence of water bodies
- well maintained gardens (native and exotic)
- development sites designed so they strengthen local character and promote a sense of community
- design which takes account of landscape features, vegetation and landform
- presence of community artworks.

The East Fremantle parkland beach LCU does not contain any of the least preferred landscape characteristics for built environments.

4.4.4 EAST FREMANTLE SEAWALL LCU

Figure 17: East Fremantle rocky shoreline LCU – view across Pier 21 Marina to East Fremantle

4.4.4.1 Character description

East Fremantle seawall LCU is defined by the linear seawall that runs between the Leeuwin Boat Ramp carpark and the Dome Café on the East Fremantle foreshore. A pedestrian footpath runs adjacent along its length, as does Riverside Road and the adjoining bike lane.

There is very little room for vegetation west of Riverside Road, with the narrow verge allowing only turf and low shrub planting in the area directly east of Pier 21. This creates a very open, exposed character dominated by grey and brown hard surfaces, and uninterrupted views to the river and undulating horizon line beyond.

The southern section of the East Fremantle seawall LCU has a wider verge, allowing for an eclectic mix of native and exotic trees over a turf understorey. The range of trees adds visual interest to the character of the site, and provides a greener colour palette as a result, punctuated by the bright blue of the softfall surface around the exercise equipment.

4.4.4.2 View significance

The East Fremantle seawall LCU is designated as Significance level 2: Regional significance. It contains several elements that contribute to its public sensitivity, including:

- roads with moderate levels of vehicle usage
- recreation and scenic sites of high local significance
- navigable waterways of regional recreation significance
- walk and cycle paths of regional significance
- views of regional importance.

4.4.4.3 View experience

The view experience within the East Fremantle rocky shoreline LCU is defined by movement. There is very little space for public amenity in this LCU, with the publicly accessible areas being predominantly the

foreshore path and adjacent Riverside Road and cycle path. Visitors to this area are more likely to be moving through it either as a travel route to/from Fremantle, or as a walker/cyclist using the paths for recreation. The rocky shoreline and raised seawall edge do not encourage people to dwell for long periods of time.

A small number of seats are provided along the length of the foreshore, and public exercise equipment is accommodated in a wider area of foreshore at the southern end.

The view experience within the East Fremantle seawall LCU depends on the viewers method of travel. The following view types are present:

- Open – views from the public pathway towards Pier 21 are uninterrupted along the entire length of the LCU, with view distance restricted by built developments and ridgeline in North Fremantle (**Figure 18**)
- Filtered – views at the southern end of the LCU are filtered by scattered trees if travelling by car or using the cycle path (**Figure 19**).

Figure 18: East Fremantle seawall LCU - open views of Pier 21 from Riverside Road

Figure 19: East Fremantle seawall LCU - filtered views of Pier 21 from Riverside Road

4.4.4.4 Landscape values

The East Fremantle seawall LCU contains some of the most preferred landscape characteristics for built environments, as identified by WAPC (2007):

- presence of trees
- presence of water bodies
- development sites supporting and enhancing the urban context in which they are located
- services being underground to reduce cabling and severance of street trees.

The East Fremantle seawall LCU contains one of the lease preferred landscape characteristics for built environments, as identified by WAPC (2007):

- lack of vegetation.

5 Visual management objective

The aim of Visual Management Objectives (VMOs) is to provide criteria that enable the assessment of visual impacts for each Landscape Character Unit (LCU).

The VMOs adopted by WAPC (2007) to manage landscape character are:

- best practice siting and design, which should be the baseline objective for all landscapes. To meet this VMO, it is expected that any proposed development is blending; that is, development may be evident but generally not prominent in that it borrows from the existing landscape setting.
- protection and maintenance, the maximum retention of the existing visual character
- restoration of degraded character and/or enhancement of opportunities, applies to degraded landscapes that require rehabilitation to enhance the visual amenity.

5.1 Protection and maintenance

The 'Protection and maintenance' VMO has been assigned to all LCUs within the Study Area as they contain a high degree of scenic amenity and a high level of public use. This VMO is consistent with the local planning policies and guidelines for the area (refer to **Sections 2.2 - 2.3.3**).

To meet this objective, proposed development should be planned and designed to have minimal visual impact on landscape character. That is, the proposed development would either be not evident (i.e. development may be hidden, screened or not visible, from specified viewing locations) or blending (i.e. development may be evident, but generally not prominent in that it borrows from the existing landscape setting) (WAPC, 2007).

6 Visual impact assessment

6.1 Photo montage analysis

Photo montages were analysed using visual impact criteria to determine dominant visual elements, which include line, form, colour and texture. The outcome of this analysis is a percentage score that determines the level of visual impact (magnitude of change), either being not visible (not evident), moderately visible (blending) or highly visible (prominent). To determine the overall impact level or the significance of the impact, the result of the visual impact analysis is combined with the Significance Level and the Visual Management Objective (VMO) of the Study Area.

Photo montages of the proposed Pier 21 Marina were prepared from three view locations with direct views development (refer **Figure 5** for view locations).

6.2 Visual impact summary

6.2.1 View location 1: Zephyr Café

LOCATION AND VIEW DESCRIPTION	
Location and View Direction	Coordinates: 383120E, 6455655N Zephyr Café is located on the East Fremantle foreshore, accessed by Riverside Road and immediately north of the Leeuwin boat ramp.
Landscape Character Units	This viewpoint located at the southern end of the East Fremantle parkland beach LCU. The view includes the North Fremantle foreshore parkland LCU and North Fremantle cliff LCU on the opposite side of the river.
Existing view	The view is divided into distinct horizontal bands; the light-coloured sandy foreshore closest to the viewer, the blue/green rippled surface of the Swan River, and the narrow band of the North Fremantle foreshore on the opposite bank. While the sand and water have a relatively uniform texture and colour, the North Fremantle foreshore appears comparatively detailed and variable due to the moored boats, jetty pylons, foreshore landscape treatments and built form in a range of styles, colours and heights. The view is mostly uninterrupted, framed by established *Phoenix sp*, palm trees.
VISUAL SENSITIVITY	
View Significance	+ Significance Level 2 – regional significance.
Most preferred characteristics (Landscape Values)	+ presence of trees, greenery, parks and gardens + complementary building styles in neighbourhoods + elevated landforms and undulating terrain + presence of water bodies + presence of natural rock features (e.g. limestone cliffs, granite outcrops) + incorporation of significant cultural and environmental features into urban design + services being underground to reduce cabling and severance of street trees
Least preferred characteristics	+ none

Visual Management Objective	+ Employ the 'Protection and maintenance' VMO to ensure that the future development is planned and designed to have minimal visual impact on landscape character, either being not evident (hidden, screened or not visible from viewpoint) or blending (evident, but generally not prominent in that it borrows from the existing landscape setting).			
VISIBILITY ANALYSIS				
Visual descriptor	**Not Evident**	**Blending**	**Prominent**	**Comment**
Line		X		The visible horizontal line of the jetty ends is consistent with the horizontal lines of the built form behind and Stirling Bridge in the distance.
Form		X		The form of the jetties is mostly screened by moored boats.
Colour		X		The neutral grey colour of the jetties blends with the water and built form behind.
Texture	X			Visual texture is not discernible at this distance.
Visibility Score	**25%**	**75%**		**Blending**
ANTICIPATED VISUAL IMPACT				
Anticipated visual change	The photo montage analysis has revealed that the proposed Pier 21 Marina development is visible but is blending with the existing character of the site. Notable visual change from the existing conditions is difficult to discern at this distance from the marina (~250 metres).			
Visual Impact Rating	Level 2			
Response to Visual Management Objectives	The development is compatible with the 'protection and maintenance' VMO assigned to this view. The landscape character, view experience and landscape values identified in the visual landscape evaluation are retained.			

Figure 20: View Location A – Zephyr Café – existing view southwest

Figure 21: View Location A – Zephyr Café – proposed view southwest

6.2.2 View Location B: Pier 21 Marina North

LOCATION AND VIEW DESCRIPTION				
Location and View Direction	Coordinates: 382933E, 6455306N The Pier 21 Marina North viewpoint is located on the North Fremantle foreshore, at the end of the pedestrian access path leading to the corner of John St and Corkhill St.			
Landscape Character Units	This viewpoint is located within the Foreshore parkland LCU. The view includes glimpses of the East Fremantle parkland beach LCU and East Fremantle seawall LCU on the opposite side of the river.			
Existing view	The view exhibits a wide range of lines, textures, colours and shapes, with much of the detail in the immediate foreground (0 to 100m). The view is framed by established *Eucalyptus sp*, trees. The shoreline is undulating and rough, defined by the light-coloured limestone rock armouring. The existing jetty provides a strong angular line through the view, dividing the scene into two main parts. Above the jetty line, the view is very detailed and variable due to the varying forms, sizes and colours of the moored boats. Above these, the dark green of the undulating East Fremantle ridgeline vegetation is interspersed with orange and white built form. Below the jetty line, an expanse of smooth, clear water provides a visual counterpoint to the visual variability seen above the jetty.			
VISUAL SENSITIVITY				
View Significance	+ Significance Level 2 – regional significance.			
Most preferred characteristics (Landscape Values)	+ presence of trees, greenery + diverse building styles in neighbourhoods + elevated landforms and undulating terrain + presence of water bodies + development sites designed so they strengthen local character and promote a sense of community + design which takes account of landscape features, vegetation and landform			
Least preferred characteristics	+ utilities (towers, transmission lines, overhead powerlines)			
Visual Management Objective	+ Employ the 'Protection and maintenance' VMO to ensure that the future development is planned and designed to have minimal visual impact on landscape character, either being not evident (hidden, screened or not visible from viewpoint) or blending (evident, but generally not prominent in that it borrows from the existing landscape setting).			
VISIBILITY ANALYSIS				
Visual descriptor	**Not Evident**	**Blending**	**Prominent**	**Comment**
Line		X		Like the existing view, the line of the proposed jetty divides the view into an area of variability in the middle-foreground, and maintains an expanse of smooth, clear water in the immediate foreground as a visual counterpoint.

Form		X		The low horizontal form of the proposed jetty is mostly screened by moored boats. It appears to be a similar height above the water as the existing jetty.
Colour		X		The neutral grey colour of the jetties blends with the water and is tonally similar to the existing jetty and foreground tree trunks.
Texture			X	The smooth finish of the jetty is at odds with the rough visual texture of the existing jetty and limestone rocks and the rippled water surface.
Visibility Score		**75%**	**25%**	**Blending**
ANTICIPATED VISUAL IMPACT				
Anticipated visual change	The photo montage analysis has revealed that most aspects of the proposed Pier 21 Marina development (line, form, colour) are blending with the existing character of the site, although the texture depicted in the photo montage has the potential to be prominent.			
Visual Impact Rating	Level 2			
Response to Visual Management Objectives	Further resolution of the proposed jetty texture is required to ensure the development is compatible with the ‘protection and maintenance’ VMO assigned to this view. However, the overall visual impact rating has been determined to be ‘Level 2’ because landscape character, view experience and landscape values identified in the visual landscape evaluation are largely retained.			

Figure 22: View Location B – Pier 21 Marina north – existing view northeast

Figure 23: View Location B – Pier 21 Marina north – proposed view northeast

6.2.3 View Location C: Pier 21 Marina South

LOCATION AND VIEW DESCRIPTION				
Location and View Direction	Coordinates: 382948E, 6455209N The Pier 21 Marina South viewpoint is located on the North Fremantle foreshore, on the access path running between the Pier 21 Resort and the shoreline.			
Landscape Character Units	This viewpoint is located within the Foreshore parkland LCU. The view to the LCUs on the opposite shore of the river is screened by moored boats.			
Existing view	The view exhibits a wide range of lines, textures, colours and shapes, with much of the detail in the immediate foreground (0 to 100m). The shoreline is defined by the rough, light-coloured limestone block wall and rock armouring, ending in an area of lush green managed garden. Grey paving is punctuated by electrical cabinets and power domes associated with the marina infrastructure. The view beyond the shoreline is very detailed and variable due to the two jetties and the varying forms, sizes and colours of the moored boats. Above this is a mix of dark green vegetation interspersed with lighter colour built form. The horizontal form of the Stirling Bridge is visible in the middle distance. Only small areas of the smooth, clear river surface are visible.			
VISUAL SENSITIVITY				
View Significance	+ Significance Level 2 – regional significance.			
Most preferred characteristics (Landscape Values)	+ presence of trees, greenery, + diverse building styles in neighbourhoods + presence of water bodies + well maintained gardens (exotic) + design which takes account of landscape features, vegetation and landform			
Least preferred characteristics	+ utilities (cabinets and power domes)			
Visual Management Objective	+ Employ the 'Protection and maintenance' VMO to ensure that the future development is planned and designed to have minimal visual impact on landscape character, either being not evident (hidden, screened or not visible from viewpoint) or blending (evident, but generally not prominent in that it borrows from the existing landscape setting).			
VISIBILITY ANALYSIS				
Visual descriptor	**Not Evident**	**Blending**	**Prominent**	**Comment**
Line		X		The straight lines of the proposed jetty compliment the lines of the existing traditional jetty. The curved lines of the access point provide a point of interest but do not dominate the view.
Form		X		The low horizontal form of the proposed jetty appears as a similar height above the water as the existing jetty in the view.
Colour		X		The neutral grey colour of the jetties blends with the water and is tonally similar to the existing jetty.

Texture		X		The smooth finish of the jetty is at odds with the rough visual texture of the existing (removed) jetty and limestone wall, and the rippled water surface. However, the angle of the jetty provides a more pleasing visual balance between the variable texture of the moored boats and the expanse of visible river surface in the foreground.
Visibility Score		**100%**		**Blending**
ANTICIPATED VISUAL IMPACT				
Anticipated visual change	The photo montage analysis has revealed that the proposed Pier 21 Marina development is blending with the existing character of the site from this view location.			
Visual Impact Rating	Level 2			
Response to Visual Management Objectives	The development is compatible with the 'protection and maintenance' VMO assigned to this view. The landscape character, view experience and landscape values identified in the visual landscape evaluation are retained. The removal of the electrical cabinets and power domes eliminates one of the least preferred landscape characteristics from the view. Further resolution of the proposed jetty materiality texture is recommended to ensure the development is compatible with the 'protection and maintenance' VMO assigned to this view.			

Figure 24: View Location C – Pier 21 Marina south – existing view southeast

Figure 25: View Location C – Pier 21 Marina south – proposed view southeast

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WAPC (2007) *Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design*. WAPC, Perth.

Appendix 1: Preference indicators

The table below lists the visual preference indicators for built environments (WAPC 2007).

Most preferred built landscape characteristics
• presence of trees, greenery, parks and gardens, street trees, canopied streets, median strip vegetation • complementary building styles in neighbourhoods • diverse building styles in neighbourhoods • built developments that do not impinge on dominant natural features (for example, the Darling Scarp, river foreshores and coastal landscapes) • coherence of industrial buildings in one area (e.g. industrial parks and buffers) • elevated landforms and undulating terrain • presence of water bodies • presence of natural rock features (ego limestone cliffs, granite outcrops) • historic features including land uses that strengthen the local urban character • well maintained gardens (native and exotic) • incorporation of significant cultural and environmental features into urban design • urban water management (water bodies that are well maintained, and open drains with a complementary appearance to the surrounding built form) • development sites supporting and enhancing the urban context in which they are located • development sites designed so they strengthen local character and promote a sense of community • design which takes account of landscape features, vegetation and landform • services being underground to reduce cabling and severance of street trees • unobtrusive mobile phone towers and other utility towers • unobtrusive advertising • presence of community artworks • multi-storey buildings that maintain the CBD character (graduated skyline and gaps between clusters of buildings to allow views).
Least preferred built landscape characteristics
• derelict industrial areas (junkyards) • large carparks without trees • run-down residential areas (dead grass, bare sand, dead vegetation, derelict housing and/or buildings, abandoned and/or trashed cars) • graffiti • intrusive billboards (particularly along roads and railway reserves) • buildings which contrast sharply from the surrounding built character (large isolated shopping centres, apartments, hotels) • arterial highways with strip commercial and light industrial developments, lacking trees and other vegetation • utilities (towers, transmission lines, overhead powerlines) • severed or badly pruned street trees • lack of vegetation • degraded areas prone to depreciative uses and unregulated vehicle activities • poorly maintained waterways and drains prone to stagnation, pollution and littering • extensive areas of urban sprawl lacking vegetation or public open space • extensive retaining walls which result in concrete canyon effects on roadways • buildings that create a solid wall effect (no gaps to allow views between buildings).

Appendix 2: Significance levels

The table below lists the significance levels which also refer to public sensitivity (WAPC, 2007).

Level 1: national / state significance

- State highways and other main roads (sealed or unsealed) with high levels of vehicle usage
- designated tourist routes, scenic drives
- recreation, conservation, cultural or scenic sites, areas, viewpoints and lookouts of state or national significance, including their access routes
- walking, cycle or bridle tracks of national or state significance
- towns, settlements or residential areas
- passenger rail lines
- navigable waterways of national or state recreation importance
- ocean sites of national or state recreation importance e.g. surf breaks
- views of national or state importance.

Level 2: regional significance

- main roads with moderate levels of vehicle usage (sealed or unsealed)
- recreation, conservation, cultural or scenic sites, areas, viewpoint, and lookouts of regional or high local significance (including their access routes)
- navigable waterways of regional recreation significance
- walk, cycle or bridle paths of regional significance
- views of regional importance.

Level 3: local significance

- all remaining roads with low levels of vehicle usage
- locally significant roads or tracks
- recreation and other use areas of local significance
- navigable waterways of local recreational significance
- walk, cycle or bridle paths of local significance
- views of local importance.

Explanatory note - significance increases with the:

- importance of views, including type, features and rarity
- volume of use of roads, trails and navigable waterways
- degree of sensitivity of viewers; those who are more likely to be more sensitive include wilderness users, other recreational users, tourists, people who choose to live in an area because of its landscape character and views (e.g. assessed by noting how vocal observers are about specific travel routes or use areas, indicated in letters, protests etc.)
- degree to which experiencing the landscape is integral to enjoyment of a travel route or site Is it the focus of the use, as in recreational use, or just incidental, as is more likely with people using a route to work?
- length of duration of a view; range could include glimpses from a high-speed road, longer duration views obtained from roads used for sightseeing or from recreation sites and Lookouts and very long and frequent views from the main living areas of homes.

Appendix 3: Proposed development

AERIAL IMAGE. 1:2000

NEW NAV. AID

REMOVE NAV. AID 847

RELOCATE NAV. AID 847

NEW JETTY A
NEW JETTY B
NEW JETTY C
NEW JETTY D
NEW JETTY E
NEW JETTY F

EXISTING JETTY A TO BE REMOVED

LEASE AREA
33,485 m²

31.50m DIA (1.75x18m)
26.25m DIA (1.75x15m)
23.00m DIA (1.53x15m)
21.00m DIA (1.75x12m)

14 JET SKIS

FLOATING DOCKS

PUBLIC SWIMMING PLATFORM.

BENCH/SEATING TO JETTY D REHABILITATION AREA.

UNIVERSAL ACCESS RAMP 1:14 GRADE.

THE LILYPAD - SWIM LADDER AND KAYAK LAUNCH.

TEMPORARY PUBLIC VESSEL TIE UP.

SHORELINE AS SHOWN ON MNG SURVEY.

LINE OF HIGH WATER MARK AS SHOWN ON MNG SURVEY TO 0.39m AHD SHOWN RED.

SHORELINE AS SHOWN ON MNG SURVEY.

NEW PUBLIC BEACH.

LADDER AND LIFE RING TO END OF ALL JETTIES.

NAVIGATIONAL BUFFER AS APPROVED BY D.O.T. SHOWN BLUE.

8x PUBLIC BENCHES TO END OF JETTIES.

ORIGINAL DA LEASE AREA SHOWN DASHED PURPLE.

PROPOSED NEW LEASE BOUNDARY SHOWN PURPLE.

PROPOSED CONCRETE FLOATING JETTIES AND FINGERS.

PROPOSED PEN SIZES AS SHOWN.

PIER 21 SITE PLAN
1:500

N

Total Lease Area Table		
Lease Area	Existing (m^2)	Revised Application (m^2)
Total Lease Area	**29,739**	**33,485**

Total Berth Sizes			
Berth Size	Existing	Original DA	Revised Application
24m	7	11	**6**
20m	11	2	**10**
18m	16	28	**29**
15m	34	96	**83**
12m	54	20	**20**
10m	34	2	**0**
8m	20	1	**12**
4-7m	17	0	**0**
Jet Skis	0	16	**14**
Totals	**193**	**176**	**174**

AERIAL IMAGE. NOT TO SCALE

PUBLIC BOARDWALK

- DEVELOPMENT TO INCLUDE A ~150m LONG PUBLIC ACCESS BOARDWALK RUNNING PARALLEL TO THE RIVERBANK.
- ALLOWING ALL ABILITIES ACCESS AT THE NORTH AND SOUTH ENDS.
- PROVISION FOR 8 PUBLIC SEATING BENCHES AS SHOWN.
- BOARDWALK TO BE FLOATING CONCRETE CONSTRUCTION

LEGEND

- ALL BERTH WIDTHS COMPLY WITH AS3962
- ALL DOUBLE BERTHS WILL HAVE MOORING PILES BETWEEN THEM
- THE T-HEADS ARE 3.5m WIDE
- FINGERS UNDER 20m ARE 1.2m WIDE
- FINGERS 20m AND OVER ARE 1.5m WIDE
- THE BOARDWALK IS 2.5m WIDE
- THE MAIN WALKWAYS ARE 2.5m WIDE
- ALL FLOATING JETTIES WILL SIT 500mm ABOVE THE WATER.

PROPOSED PIER 21 DEVELOPMENT

date:	no.	description	by
14/05/25	A	Issued for DBCA DA Submission	nc

REVISIONS

RODRIGUES BODYCOAT ARCHITECTS
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JOB PIER 21

ADDRESS 3 John St, North Freemantle

DWG Include Jetty A Area & Future Jetty F

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.
as shown	nc	sr	Oct 2023	-

A1.0

Rev. A

Date Printed: **Wednesday, 14 May 2025**

Current Projects - Documents\RBA PIER 21\02_PROJECTS\1_Archicad\09_Current - Entire Marina 500mm off Shore_140525\PIER21_Current_AC27_140525.pln

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Pier 21 Marina Pty Ltd

27 June 2025

Department of Biodiversity Conservation and Attractions (DBCA)
17 Dick Perry Avenue
Kensington WA 6151

Attention: Statutory Assessments Rivers & Estuaries Branch

Parking – Pier 21 Marina

Further to your request, we provide a clearer outline of parking requirements for the new Pier 21 Marina.

In the proposed development, there will be a lower number of pens and the same number of car bays. There is no basis for any claim that parking will be adversely affected.

For the first time since the Moorings development, there will be a clear surplus of car bays calculated under the Australian Standards, which are as follows;

- AS3962 : 1991 – the standard applicable when the Moorings were approved
- AS3962 : 2020 – the standard applicable to marinas at present

The relevant portions of both standards are attached at **Appendix 2.** The current Australian Standard 3962 : 2020 requires 1 car bay for every 4 Pens of the marina plus 1 bay for every employee.

Corporate Policy 43, Planning for Marinas, published by the DBCA, requires that parking be as per the relevant Australian Standards. Under this standard, the proposed development at Pier 21 will have a surplus of 4 car bays.

On 11 October 2024, we took an assignment of the existing lease for the 48 bay car park near the marina. This was also with an assignment of a 21 year lease commencing on 16 April 2027 with a further 21 year option. This car park lease runs in parallel with the proposed River Reserve Lease under the Heads of Agreement.

We recently became aware that condition 14 of the Moorings apartments development approval (1998) required that that some Pens be 'allocated' to Moorings residents. We believe this was so there were sufficient car bays for the overall development and marina to meet the planning requirements at the time.

We have calculated the car bay requirements, both then and now, below;

1. Car Bay requirement for the Moorings Development without Condition 14

The table below shows that without Condition 14 in the Development application for the Moorings, the deficit in the number of car bays for the marina, based on the Australian Standard at the time would have been 24 car bays.

	Berths	Australian Standard	Car Bays
10m and under	72	0.3	21.6
Between 10m and 15m	72	0.4	28.8
Greater than 15m	42	0.5	21.0
Total Berths	186		71.4
Employee	1	0.5	0.5
Car Bays required			**71.9**
Car Bays available			48
Surplus / Shortfall			**-24**

2. Car Bay requirement as per current marina and car park arrangements

In 2001, the Australian Standard for car bays changed to 1 car bay per 4 pens which is the same as the current 2020 standard. Under this standard, there is presently a surplus of one car bay.

	Pens	Australian Standard	Car Bays
Wet Pens	186	0.25	46.5
Employee	1	0.25	0.25
Car Bays required			46.75
Car Bays available			48
Surplus			**1**

3. Car Bay requirement as per the proposed development

As there are a lower number of pens in the proposed marina development, the surplus of car bays increases to 4. This is without any allocation to the Moorings or Jetty A residents.

	Pens	Australian Standard	Car Bays
Wet Pens	174	0.25	43.5
Employee	1	0.25	0.25
Car Bays required			43.75
Car Bays available			48
Surplus Car Bays			**4**

It is clear that the proposed development will meet the Australian Standard AS3962.

4. Car Bay requirement as per the proposed development with Jetty A

As the DBCA are aware, we have an Agreement to purchase the river reserve lease and Jetty A. This lease is presently held by local residents surrounding Direction Way, adjacent to Jetty A. A total of 11 residents will take a sub-licence in the new development and will not require any parking bay. If these are removed on the same logic as WAPC used for Condition 14, then there is a surplus of 7 car bays.

	Berths	Australian Standard	Car Bays
Wet Berths	174		
Sub-Licensed to Jetty A residents	-11		
Total	163	0.25	40.75
Employee	1	0.25	0.25
Car Bays required			41.0
Car Bays available			48
Surplus Car Bays			**7**

Operation of Condition 14 and allocations to Moorings residents

Condition 14 was aimed at reducing the parking requirements in the local area by allocating a pen to each Moorings resident. According to documents registered at Landgate by the strata in 2000, presumably in satisfaction of Condition 14, the arrangement was that if a resident required a pen, they could ask the strata and marina to provide them one. We expect this was done as otherwise any Moorings resident that did not have a boat would have to pay for the costs of the pen.

This continued until a 2015 Deed of Variation between the strata and the marina that removed the strata from any dealings with pens which since that time have been private arrangements between the marina and the Moorings resident.

At present there are only 10 residents of the 46 Moorings residents that have their boats in the marina, meaning the practical impact of Condition 14 on reducing the parking requirements is minimal.

In any event, the proposed development meets the Australian Standard.

Actual Evidence

We believe the most important test for the adequacy of parking for the Marina is actual evidence. We attended Pier 21 Marina at various times over the 2025 Australia Day long weekend and took photographs. For boating, the Australia Day long weekend would be considered the busiest or 2nd busiest period for boat use and hence parking. The only other period that could potentially exceed this period would be from Boxing Day through New Years Day. Appendix 1 shows there are still vacant car bays on what is likely the 2nd busiest weekend of the year.

Yours sincerely,

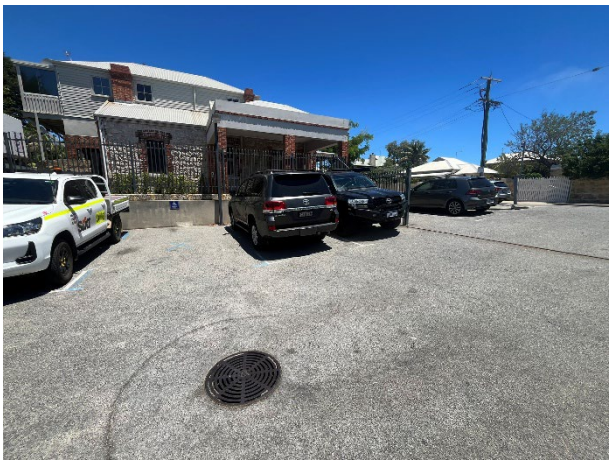
Appendix 1 – Australia Day Long Weekend

Saturday 25th January – 12.30pm

These were taken at 12.30pm on Saturday 25th January 2025. It is expected that all boats that were going to Rottnest or were going out for the day on the Swan River would have left. It was fine weather. It is calculated there were 6 car bays free.





Sunday 26th January – 9.21am

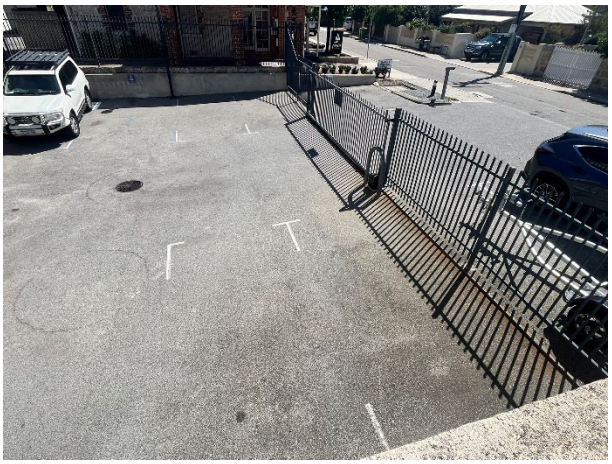
This was taken at 9.30am on Sunday 26th. All boats would have been expected to have left for Rottnest Island and would not have returned. It is estimated there were at least 20 bays free.

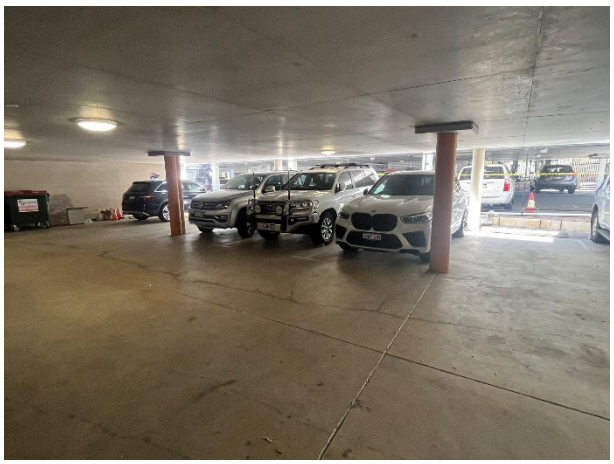
Sunday 26th – 3.00pm

This was taken at 3.00pm Sunday 26th January prior to the Australia Day events at the city. It is expected that boats would not have returned from Rottnest and there would be boats on the river. It is estimated there were 17 bays free.







Appendix 2 – Australian Standards

AS 3962:1991 Section 7 Traffic And Parking

SECTION 7 TRAFFIC AND PARKING

7.1 TRAFFIC Traffic access arrangement should comply with the requirements of the relevant authority.

Traffic arrangement within car-parking areas and access arrangement should be in accordance with AS 2890.1.

7.2 PARKING

7.2.1 General The number of car-parking spaces to be provided for development of new facilities, is based on the particular activities and uses at each site.

In the absence of traffic and parking studies, car-parking requirements in urban areas may be estimated from the following:

(a) Car parking for marina activities:

(i) Spaces to be provided per wet berth designed for boats:

(A) 10 m and under . . . . . 0.3 to 0.6

(B) between 10 m and 15 m . . . . . 0.4 to 0.8

(C) greater than 15 m . . . . . 0.5 to 1.0

(ii) Spaces to be provided per dry berth 0.2

(iii) Spaces to be provided per swing mooring 0.2

(iv) Spaces to be provided per employee 0.5

AS 3962:2020 Section 8 Parking

8.2.2 Boat storage parking guide

A traffic and planning study should be used to determine boat storage parking. The following car parking guidelines may be used for boat storage only, only in the absence of traffic and parking studies:

(a) Car parking for marina activities, as follows:

(i) 0.25 spaces per wet berth designed for vessels.

(ii) 0.25 spaces per dry berth.

(iii) 0.25 spaces per swing mooring.

(iv) 0.25 spaces per employee.

ATTACHMENT 3

PUBLIC BOARDWALK

- DEVELOPMENT TO INCLUDE A ~280m LONG PUBLIC ACCESS BOARDWALK RUNNING PARALLEL TO THE RIVERBANK.
- ALLOWING ALL ABILITIES ACCESS AT THE NORTH AND SOUTH ENDS.
- PROVISION FOR 2 PUBLIC SEATING BENCHES AS SHOWN.
- BOARDWALK TO BE FLOATING CONCRETE CONSTRUCTION

Total Berth Sizes

Berth Size	Existing	Proposed	Difference
24m	7	11	4
20m	14	2	-12
18m	21	28	7
15m	22	96	74
12m	50	20	-30
10m	32	2	-30
8m	17	1	-16
4-7m	23	0	-23
Jet Skis	0	16	16
Totals	**186**	**176**	**-10**

AERIAL IMAGE. NOT TO SCALE

PROPOSED PIER 21 DEVELOPMENT

date:	no.	description	by
11/10/24	05	Minor Graphical Revisions	nc
19/09/24	04	Issued for DBCA DA Submission	nc
04/09/24	2-3	Internal Design Iterations	nc
06/08/24	01	For Discussion with DBCA 7th August 2024	nc

REVISIONS

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e. info@rodbod.com.au

JOB PIER 21

ADDRESS 3 John St, North Freemantle

DWG Include Jetty A Area & Future Jetty F

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.
as shown	nc	sr	Oct 2023	-

A1.0

Rev. 05

Date Printed: **Friday, 11 October 2024**

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(08) 9430 4500 | info@pier21marina.com.au
pier21marina.com.au | ABN: 38 675 614 052
Pier 21 Marina Pty Ltd

24 October 2024

Department of Biodiversity Conservation and Attractions (DBCA)
17 Dick Perry Avenue
Kensington WA 6151

Attention: Statutory Assessments Rivers & Estuaries Branch

Development Application – Pier 21 Marina (formerly John Street Marina)

Boat Pens Pty Ltd ("the Applicant") trading as Pier 21 Marina has recently acquired the River Reserve Lease and Heads of Agreement ("HOA") for the Pier 21 Marina in North Fremantle.

This HOA allows for a further lease term with a condition that five of the six jetties (Jetty B to F) are replaced.

The jetties to be replaced were built between the 1960s and 1980s and have exceeded their useful life.

The following submission sets out the details of the site, background, proposed redevelopment and planning considerations. **Attachment 1** is the proposed site plan of the development application.

1. SITE DETAILS

1.1 Legal description

The subject site comprises two river reserve leases. The proposed development is within the Swan Canning development control area.

John Street Marina (or "Pier 21 Marina" or "Jetty B, C, D, E, F & G")
Part of the subject site is described as a leasehold interest, which commenced on 16 April 2006, in part of the River Reserve at North Fremantle, which has a riverbed area of approximately 27,500m^2

Jetty Portside (or Jetty A)
Part of the subject site is described as a leasehold interest, which commenced on 14 April 2004, part of the riverbed at North Fremantle having a riverbed area of approximately 2,240m². [We have an agreement to acquire this lease to allow the development contemplated and the public benefits associated herein].

Moorings Marina Carpark (or Marina Office)
Part of the subject site is described as the whole of Lot 51 on Strata Plan 39106, known as Lot 51, 3 John Street, North Fremantle. The Applicant holds a leasehold tenure by a current lease dated 23 March 2007 and a future lease commencing 16 April 2027 and extending, with option, to 15 April 2069.

The lease boundaries are depicted in **Figure 1** below.

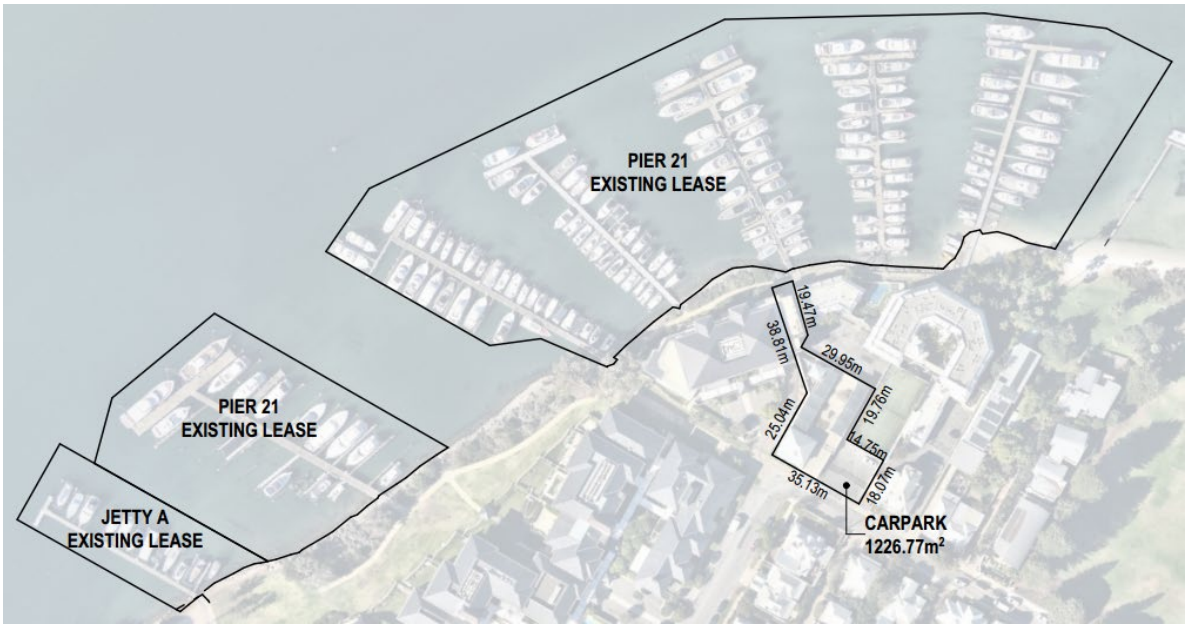


Figure 1 - Current lease area boundaries.

1.2 Site context

The subject site is in the Swan River Trust Development Control Area (DCA) and adjoins the City of Fremantle (City) in the suburb of North Fremantle.

The locality around the subject site is varying as set out below:

- North - Portside Park and the Water Police;
- East - Swan River navigational channel;
- South - Gilbert Fraser Reserve; and
- West - Public parkland and residential zoning.

The nearest intersection is Corkhill Street and 3 John Street, North Fremantle. The subject site's River Reserve Lease does not access a gazetted road or include any area above the high-water mark.

Attachment 2 is the topographical information on the site's location.

1.3 Land Use and Topography

The current improvements include seven jetties, seven riverbank crossings and 192 pen berths. The table below summarises the current improvements.

Jetty (Lease)	Length (approx. lineal metres)	Total Berths
A (Jetty Portside)	144	16
B (Pier 21 Marina)	388	21
C (Pier 21 Marina)	371	33
D (Pier 21 Marina)	338	34
E (Pier 21 Marina)	358	27
F (Pier 21 Marina)	327	30
G (Pier 21 Marina)	399	31
Total	2,325	192

The site has some topographic constraints shown below (refer to **Figure 2**):

- The Water Police lease constrains the lease boundary to the North
- City of Fremantle's North Fremantle Foreshore Management Plan (2013) designates Portside Park as a public open space in the locality
- The Department of Transport navigational marker (Nav. Marker 847) indicates the Swan River navigational channel to the West
- A public access corridor is located between Jetty B and Jetty C
- A private jetty licence is located to the South

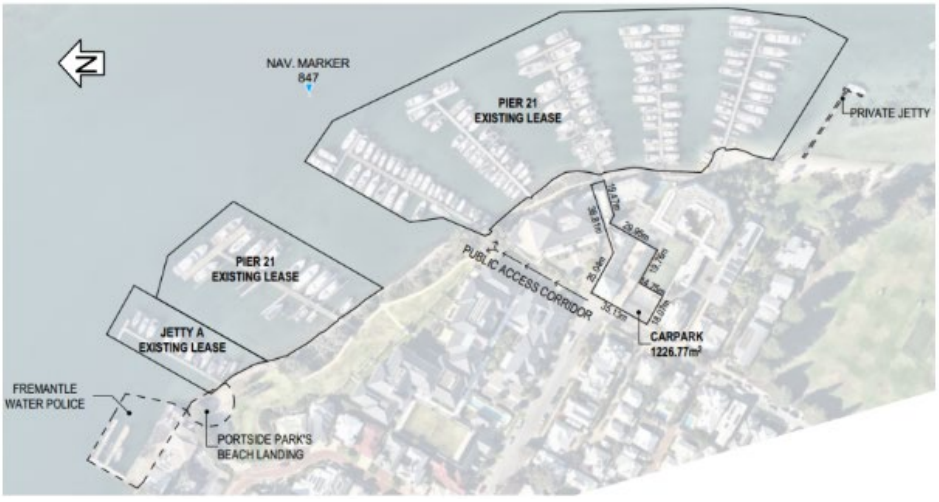


Figure 2: Topographic constraints and location details.

2. BACKGROUND

The subject site was historically a shipyard and underwent a change of use and redevelopment in 2002. The current land use is as a marina.

Based on historical imagery, the estimated construction dates of the various jetty structures is outlined below:

- Jetty A - 1989
- Jetty B - 1965 and T head extended in 1989
- Jetty C - 1981
- Jetty D - 1970
- Jetty E - 1989
- Jetty F - 1977
- Jetty G – 2010 refubishment

With the exception of Jetty G, the jetty structures exceed their useful lives and require unsustainable maintenance to maintain operational use.

On 1 December 2022, a Heads of Agreement (HOA) was granted by the DBCA to provide for a new lease to be granted over the river reserve area. This HOA has been assigned to the Applicant.

The HOA requires the replacement of five of the six jetties at a minimum construction value of $4 million.

The HOA intends but does not obligate, that Jetty G is the sole jetty that can be retained.

Shown as **Attachment 1** is the site plan of the proposed development.

The applicant has entered into an agreement with the owners of Jetty A to acquire their river reserve lease interest of Jetty Portside, informally known as Jetty A.

Therefore, Jetty Portside (Jetty A) forms part of the subject site for this development application.

The Marina Car Park is incorporated into the subject site as a marina office and 48-bay car park by way of a development approval dated 5 March 2002. The total term of the current and future lease, including options, is until 15 April 2069.

3. PROPOSED DEVELOPMENT

This development application considers the long tenure and entire locality of the area around Jetty A and the Pier 21 Marina.

This proposal includes;

- rationalising 3 x river reserve lease area boundaries into a single lease
- removing seven jetties and replacing them with six jetties
- removal of three redundant riverbank crossings and rehabilitation of shoreline vegetation
- introducing a public use boardwalk connecting Portside Park to Gilbert Fraser Reserve

3.1 Rationalisation of river reserve lease boundaries

The current river reserve lease boundaries consist of three separate lease areas.

The total current river reserve lease area is 29,739m², comprising Jetty Portside's riverbed lease area of 2,239m² and the existing Pier 21 Marina riverbed area of 27,500m². The proposal rationalises the three separate areas into a single lease of 35,223m² by incorporating 3,811m² of river between current jetties B and C.

Section 4.1 covers planning considerations to changes of the river reserve lease boundaries. **Attachment 3** is the proposed lease boundary variation plan. **Attachment 4** has been provided to the Department of Transport to contemplate navigational amenity of the proposed lease changes.

3.2 Introduction of public use boardwalk

A 280-meter public boardwalk is proposed to run parallel to the shoreline and connect Portside Park to Gilbert Fraser Reserve. It will be 2.5 meters wide to allow for universal access and introduce public seating benches, as depicted in **Figure 3** below.

The public will have access to this boardwalk at all hours of the day.

Figure 3 - Example of a bench seat on a floating pontoon.

3.3 Removal of seven jetties and replacing them with six jetties

In addition to the public use boardwalk, the proposed structures include:

- 6 x floating jetties, each being approximately 2.5m wide
- 4 x access ways to the jetties
- 6 x T heads for wave attenuation (approximately 4m wide)
- 73 full-length fingers
- Eventual replacement of Jetty G with similar floating jetty
- Sliding access doors to each jetty controlled by fob access

The proposed number of vessels and lengths to be berthed is outlined in the table below. The total number of current berths is presently 192 (including Jetty A) and this will reduce to 176

Berth size	Berth amount
24m	11
20m	2
18m	28
15m	96
12m	20
10m	2
8m	1
Jet ski dock	16
Totals	**176**

The configuration above has been selected to closely reflect the current and future demand for vessels.

The jetties are to be constructed using concrete floating pontoons secured by steel piles with HDPE sleeves, as shown in **Figure 4** below. The ends of the jetties will have a T-Heads of approximately 4m width for wave attenuation. There will be 73 full-length floating concrete fingers between the vessels, as shown in **Figure 5**.

Figure 4 - Floating concrete pontoons

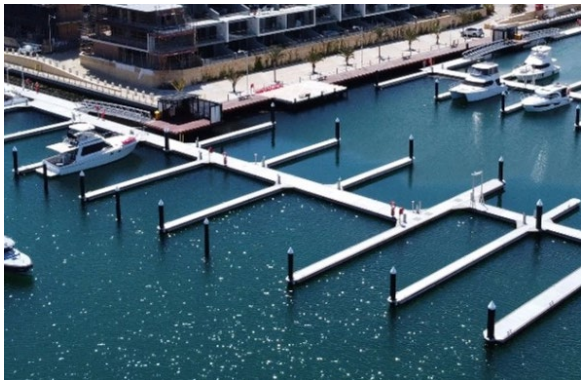


Figure 5 – Typical fingers

It is proposed that access to each of the jetties will be via sliding glass access doors. This will be controlled by fob access for the marina users. The material selection is permeable glass with minimalist supporting frames.

The boardwalk will be open at all times for public access.

An example of minimalist glass security gates is shown in Figure 6 below. These will be at the base of each jetty but will be smaller than the example shown below.

Section 4.2 covers planning justification to incorporate the gates in the proposed development.

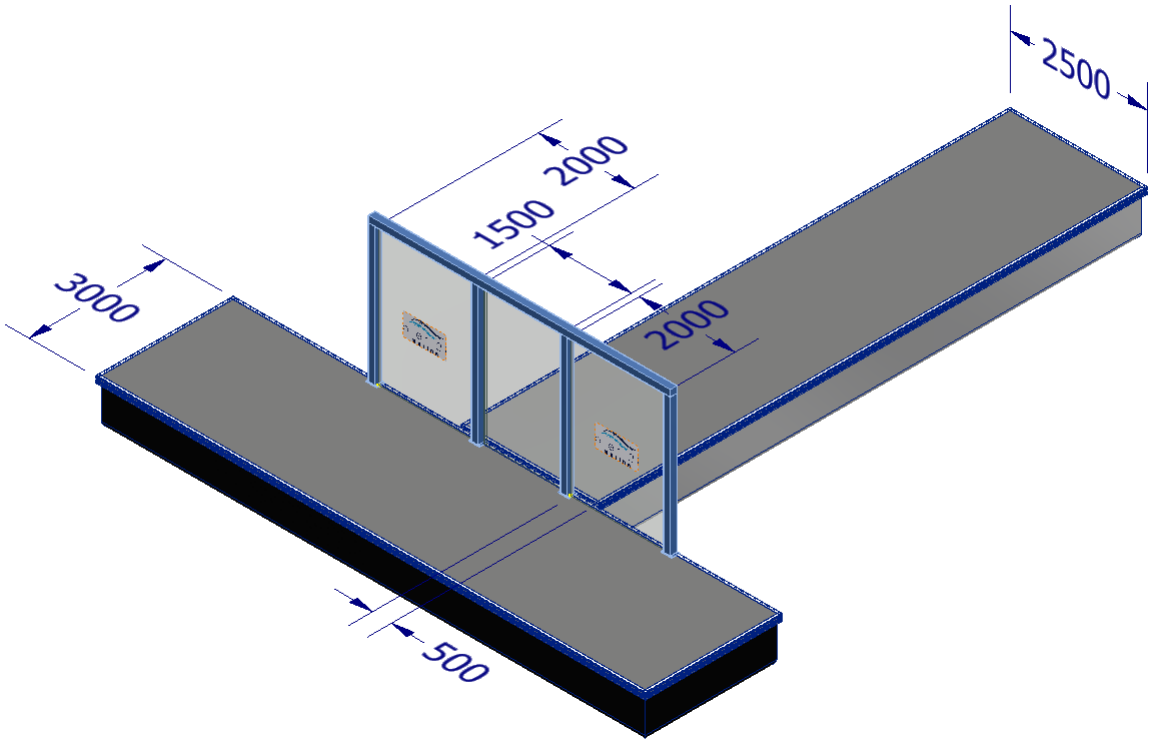


Figure 6 – Example of glass gates at the start of each jetty

3.4 Rehabilitation of shoreline vegetation

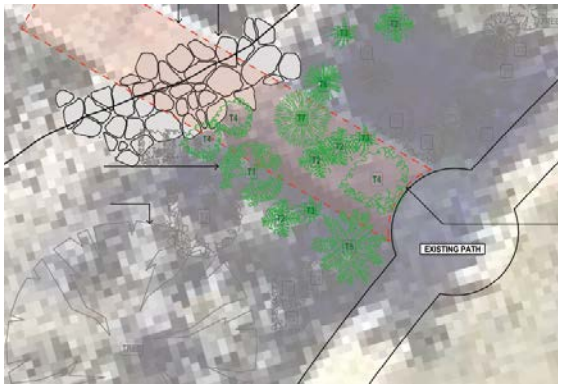
The redundant concrete landings of the existing marina access points are proposed to be landscaped sympathetic to the adjoining softscape/hardscape.

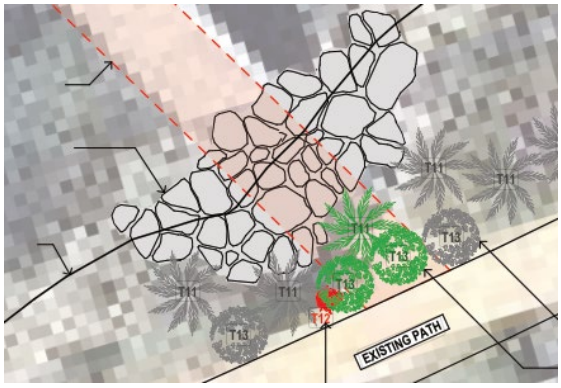
Redundant gangway	Immediate Locality	Proposed Landscape
Jetty A	Rock wall, amphitheatre, path and beach. Known as Portside Park.	Removal of jetty landing. Reinstatement of rock wall.
Jetty B	Rock wall and shoreline vegetation	Removal of jetty landing and pathway. Reinstatement of shoreline vegetation.
Jetty D	Rock wall and shoreline vegetation	Removal of jetty landing and pathway. Reinstatement of shoreline vegetation.
Jetty F	Rock wall and shoreline vegetation	Removal of jetty landing and pathway. Reinstatement of shoreline vegetation.
Jetty G (future)	Sandy beach	Removal of jetty landing. Maintain a sandy beach.

Figure 7 shows that Jetty B and Jetty D's riverbank crossings bisect the shoreline vegetation and the proposed landscape plan. The proposal seeks to remove these crossings and reinstate back to shoreline vegetation.

Figure 7 – Jetty B site photo

Figure 7 - Jetty D site photo





Jetty B proposed landscape plan

Jetty D proposed landscape plan

4. PLANNING CONSIDERATIONS

4.1 Rationalisation of river reserve lease area

The proposal increases the river reserve lease area from 29,739m^2 to 35,223m^2 as proposed in **Attachment 2**. However, of this latter area, 3,161m^2 is for the public boardwalk or is not useable, meaning the exclusive useable area is 32,062m^2.

The current effective use area is 33,550m^2, meaning the effective useable area of the lease is reducing by 1,488m^2 or 4.4%.

The effective area comprises 29,739m^2 of the lease area, as mentioned above, and a fairway corridor of 3,811m^2 between Jetty B and Jetty C.

The fairway corridor (shown in Figure 8 below, hatched in blue) is not currently part of the lease area boundaries but forms part of the effective area presently used. Access from the shoreline is prohibited due to a vegetative screen and rock wall

A table summarising the lease area changes are shown below.

Initial Area	**Area (m^2)**
Pier 21 Marina lease area	27,500
Jetty A Portside lease area	2,239
Effective use area shown in Figure 8	3,811
Total current effective area	33,550

Proposed Area Variations	**Area (m^2)**
MNG survey revision to lease area	26
Eastern boundary extension into deeper water	6,341
Jetty Portside (Jetty A) lease area reduction	-2,239
Pier 21 Marina north boundary reduction	-1,335
Pier 21 Marina southern boundary reduction	-1,120
Total proposed area	35,223
Net Change	**1,673**

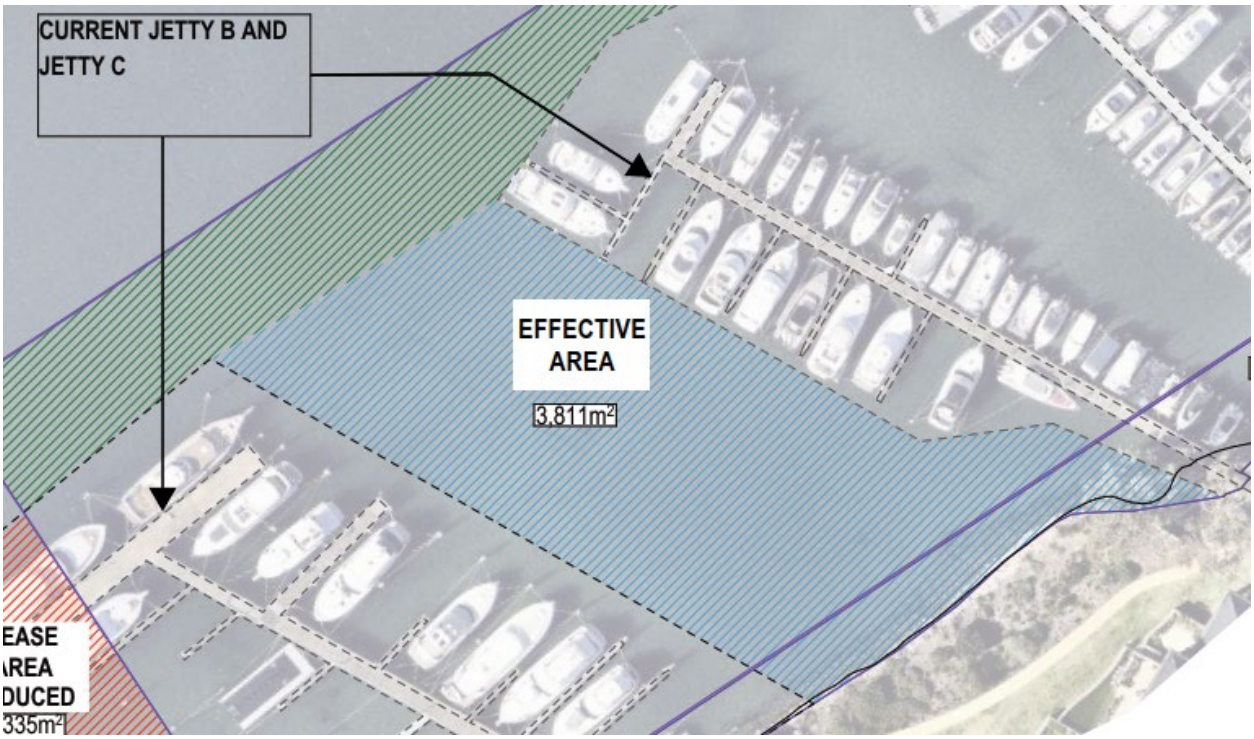


Figure 8 - Effective use area hatched in blue

The northern lease boundary is proposed to be reduced by removing Jetty A's lease area of 2,239m² and reducing part of the current John Street Marina lease area by 1,335m². John Street Marina's southern boundary will be reduced by 1,120m².

The eastern lease boundary area will extend into deeper water by 6,341m². The Department of Transport has been consulted for navigational comment prior to lodging this development application.

When contemplating the current effective area, the application seeks a minor increase in lease area (inclusive of the public boardwalk and non-useable area) of 1,673m² (4.99%). This increase in area is justifiable as follows:

- The 280m public boardwalk connecting Portside Park to Gilbert Fraser Reserve has multiple benefits in-line with State Planning Policy 2.10, including;
    - Improvement to public access to the river foreshore
    - Enhanced views to the water and connection to the river given the current landside path has a vegetative screen that prohibits sightlines to the river
- The boardwalk increases natural vegetation corridors parallel to the shoreline by reducing riverbank crossings.
- Enhanced public access to the river by reducing the linear distance of the foreshore area occupied. The foreshore from the most northern point of the lease boundary (Jetty A) to the most southern point (Jetty G) is reduced by approximately 40 lineal metres. The proposal reduces the

most north lease datum to the southern lease datum by approximately 66 lineal metres as the current lease boundaries splay wider into the river.

- The boardwalk increases the lease area by 3,161m² (the distance from the high-water mark to the boardwalk). The applicant proposes to maintain and upkeep this area in a way that is consistent with their proposed lease area. On an effective area basis, the total proposed area would be reduced by 1,488m² less than the total current effective area.

- Consolidating the lease area boundaries and removing Jetty Portside (Jetty A) improves Portside Park's sense of place. The proposal enhances public access to the foreshore beach. Allowing a suitable place for connection to the river (i.e. canoe entry). **Figure 9** shows Jetty A currently encroaching on Portside Park's beach.

- The Marina Design Standards (AS 3962-2020) have increased some design requirements requiring an increase in the overall area needed for the marina.

Figure 9 - photo of Jetty A in a western direct to Portside Park

4.2 Access

The proposal incorporates sliding access doors at the base of each jetty. The public boardwalk will be open at all times.

The sliding access doors are justified as follows:

- The Pier 21 Marina is the only marina facility inconsistent with the precedent of controlled access. The Applicant has reviewed 42 jetties in the Blackwall Reach and Melville Water precinct. All other marina facilities have controlled access via pedestrian or vehicular gates.

- The Applicant is required to adhere to various negative covenants within the river reserve Lease and jetty licence (i.e. nuisance, residing, touting, animals, etc.) In addition to these lease obligations, there have been consistent reports of anti-social behaviour, including theft and property damage. Controlled access ensures that the marina manager can supervise these obligations, minimise disruption and protect property.

4.3 Parking

The Pier 21 Marina currently has 176 berths supported by 48 car bays.

Jetty Portside (Jetty A) has 16 berths supported by nil car bays.

The proposal seeks to maintain 176 berths supported by 48 car bays.

The City of Fremantle does not have a designated parking allocation for a marina use. The Marina Design Standards (AS 3962-2020) designates 0.25 bays per wet berth and 0.25 per employee which is a total requirement of 46 car bays, rounded up.

Therefore, the proposed development will have 2 more car bays than required by Australian Standards.

4.4 Development Approval Term

We respectfully request the standard term of substantial commencement being varied from two years to three years. This request is justifiable as follows:

- The works are to be staged to allow for many of the vessels to be retained on site during construction. The scheduling indicates Jetty F/G's substantial commencement will extend past the two-year substantial commencement period.

- The HOA contemplates five of the six jetties to be replaced and practically completed by 15 April 2027. Jetty A – E are required to have substantial commencement prior to practical completion. This leaves only Jetty F/G to be substantially commenced in the period being 15 April 2027 to three years from the development approval being granted.

- A term of three years for substantial commencement is not inconsistent with planning approvals granted for significant development from other statutory bodies.

5. CONCLUSION

This application represents a once in 50 year opportunity to create a high quality marina with substantial public amenity and aesthetic.

The proposed redevelopment of the Pier 21 Marina seeks minor modifications to convert the effective area into the proposed lease boundaries.

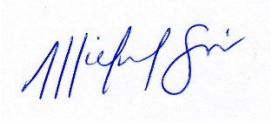
In particular, the proposal introduces a public boardwalk connecting Portside Park to Gilbert Fraser Reserve and removes Jetty A's encroachment on Portside Park.

The rationalisation of lease boundaries and public boardwalk complements public access, use and experience of the Swan River, which is consistent with State Planning Policy 2.10.

We respectfully request an invitation to any committee or meeting of the Department of Biodiversity, Conservation and Attractions, the City of Fremantle or the Western Australian Planning Commission at which this matter is considered.

Should you have any queries or require further clarification regarding this proposal, please do not hesitate to contact us.

Yours sincerely,



Michael Sier
Managing Director

Kent Cliffe
Director

Attachments

1. Proposed Pier 21 Site Plan
2. Pier 21 Redevelopment – Topographical Info
3. Pier 21 Redevelopment – Lease Area Variation
4. Pier 21 Redevelopment – River Navigation
5. Pier 21 Redevelopment – Landscape Planting Layout Plan
6. Electronic CAD Shape File (showing current and proposed lease boundaries)

PIER 21 - TOPOGRAPHICAL INFO

1:2000

PIER 21
REDEVELOPMENT
TOPOGRAPHICAL INFO

date:	no.	description	by
19/09/24	03	Issued for DBCA DA Submission	nc
04/09/24	02	Scale Revisions	nc
03/09/24	01	Issued for Information	nc

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JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG PIER 21 TOPOGRAPHICAL PLAN

SCALE	DRAWN	CHECKED	COMMENCED	
as shown	nc	sr	10/23	A1.6

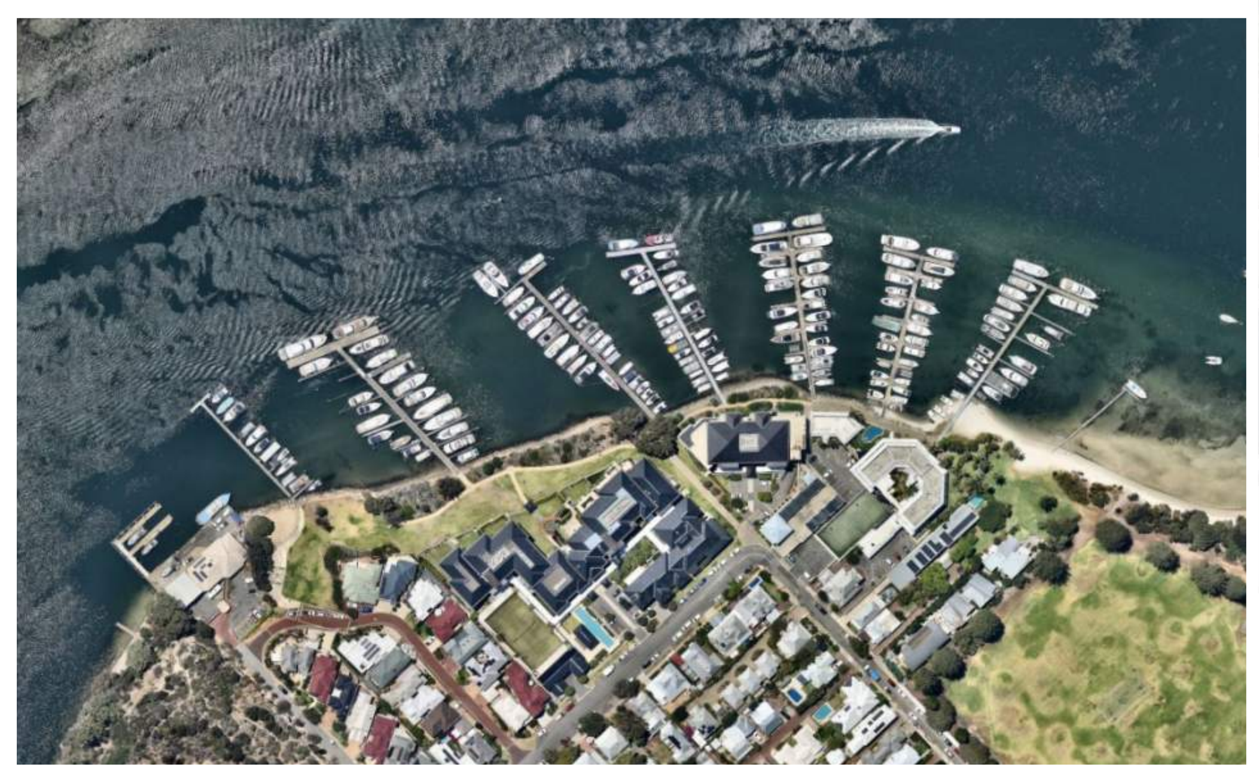
Date Printed: **19/09/2024** Rev. 03

PIER 21 LEASE VARIATION PLAN
1:500

N

Initial Areas	Area (m^2)	Variation %
Initial Pier 21 lease area (per lease agreement) assigned to Boat Pens Pty Ltd	27,500	
Initial Jetty A lease area (per lease agreement) assigned to Boat Pens Pty Ltd	2,239	
Add infill area shown which is effectively exclusive use	3,811	
Total Effective Commencing Lease Area	**33,550**	

Area Variations	Area (m^2)	Variation %
Existing P21 lease area variation measured with new MNG survey	26	
Plus new lease area extension into Swan River	6,341	
Area removed south of Jetty G	-1,120	
Area removed north of Jetty A	-1,335	
Jetty A area demolished/removed	-2,239	
Net Variation	**1,673**	**5%**
Total Pier 21 Lease Area Requested	**35,223**	**5%**



AERIAL IMAGE. NOT TO SCALE

PIER 21 REDEVELOPMENT
LEASE AREA VARIATION

date:	no.	description	by
11/10/24	05	Minor Graphical Revisions	nc
19/09/24	04	Issued for DBCA DA Submission	nc
10/09/24	2-3	Internal Design Iterations	nc
13/08/24	01	Issued for Information	nc

REVISIONS

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JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG PIER 21 REDEVELOPMENT: LEASE AREA VARIATION
A1.5

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.	
as shown	nc	sr	Oct 2023	-	Rev. 05

Date Printed: **Friday, 11 October 2024**

- Documents\RBA PIER 21\02_PROJECT\01_Archicad\Post Lease Boundary Change_111024\PIER21_Current_100924.pln

PIER 21 REDEVELOPMENT - RIVER NAVIGATION CONSIDERATIONS
1:1500

NOTES

1. THIS DRAWING SHOWS THE RIVER NAVIGATION CHANNEL AROUND THE PROPOSED PIER 21 LEASE BOUNDARY.

LEGEND

- 100m — CURRENT RIVER NAVIGATION DIMENSIONS.
- 100m — PROPOSED PIER 21 NAVIGATION DIMENSIONS

PIER 21 REDEVELOPMENT - RIVER NAVIGATION
NAVIGATION CHANNEL

date:	no.	description	by
11/10/24	09	Minor Graphical Revisions	nc
19/09/24	08	Issued for DBCA DA Submission	nc
11/09/24	6-7	Internal Design Iterations	nc
05/08/24	05	For Discussion with DBCA 7th August 2024	nc
22/07/24	1-4	Internal Design Iterations	nc

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JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG Pier 21 Redevelopment - River Navigation Sheet 2: Navigation Channel

A1.2

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.	
as shown	nc	sr	Oct 2023	-	Rev. 09

Date Printed: **Friday, 11 October 2024**

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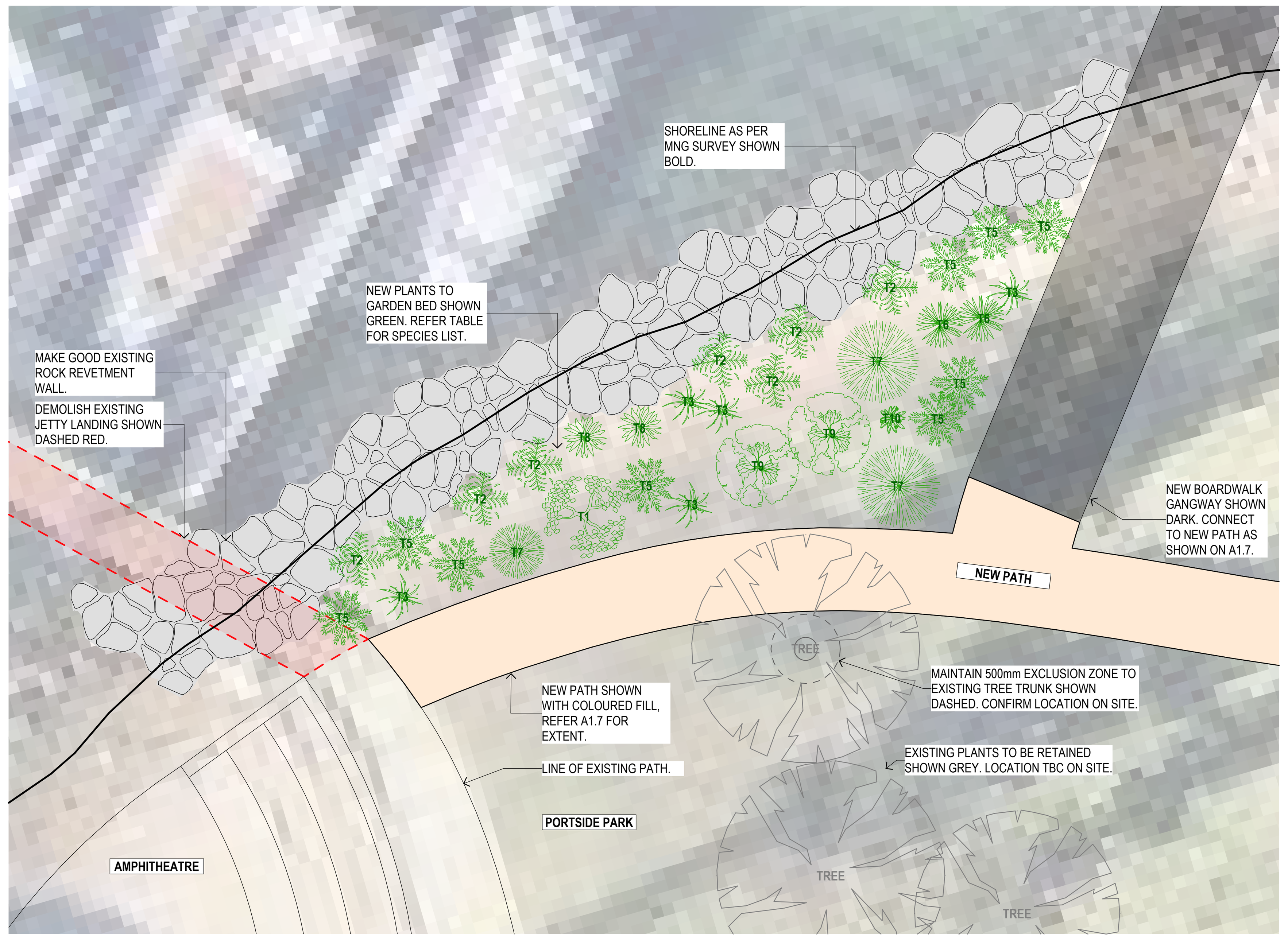
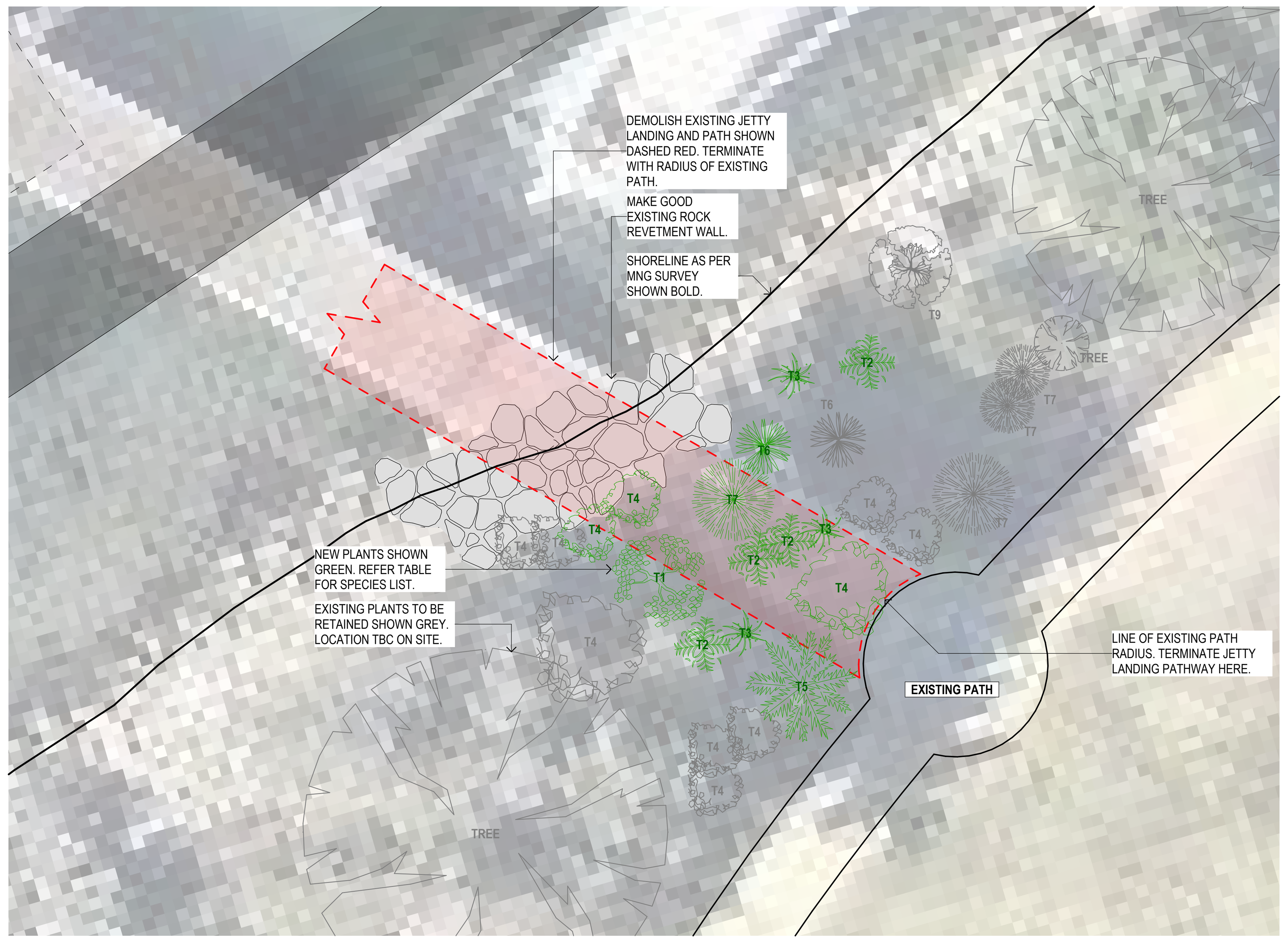
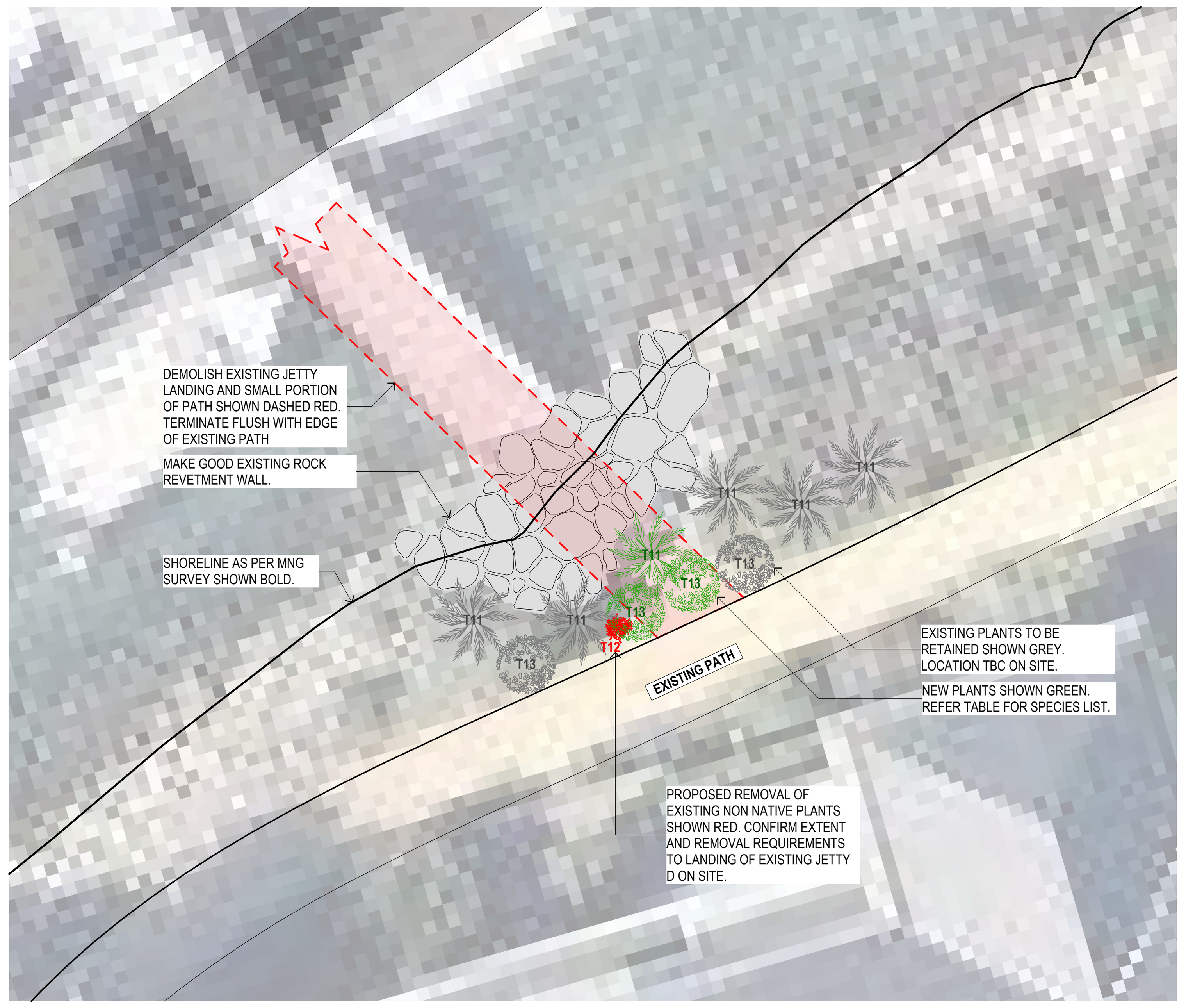


1 **JETTY A LANDING**
1:100



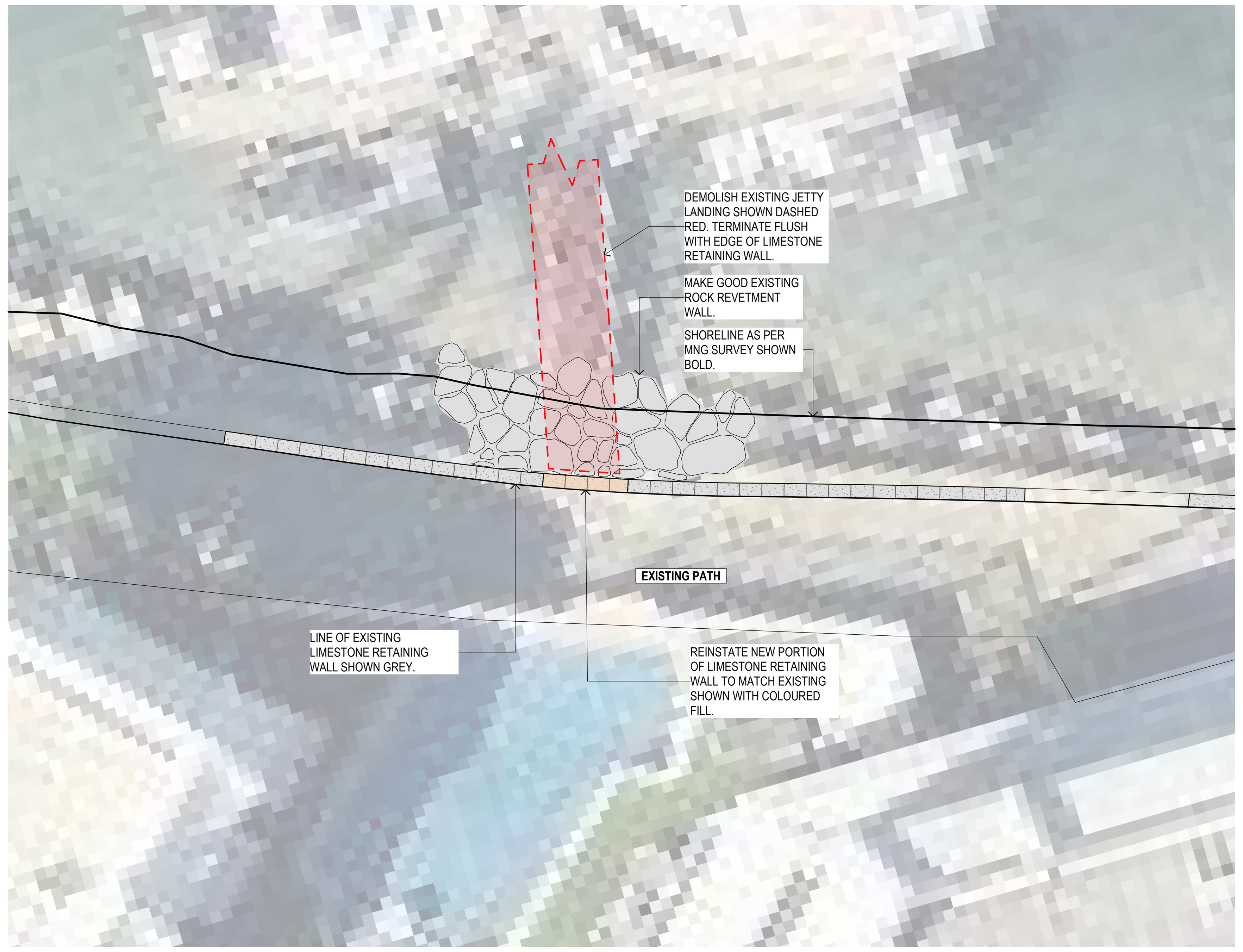
2 **JETTY B LANDING**
1:100



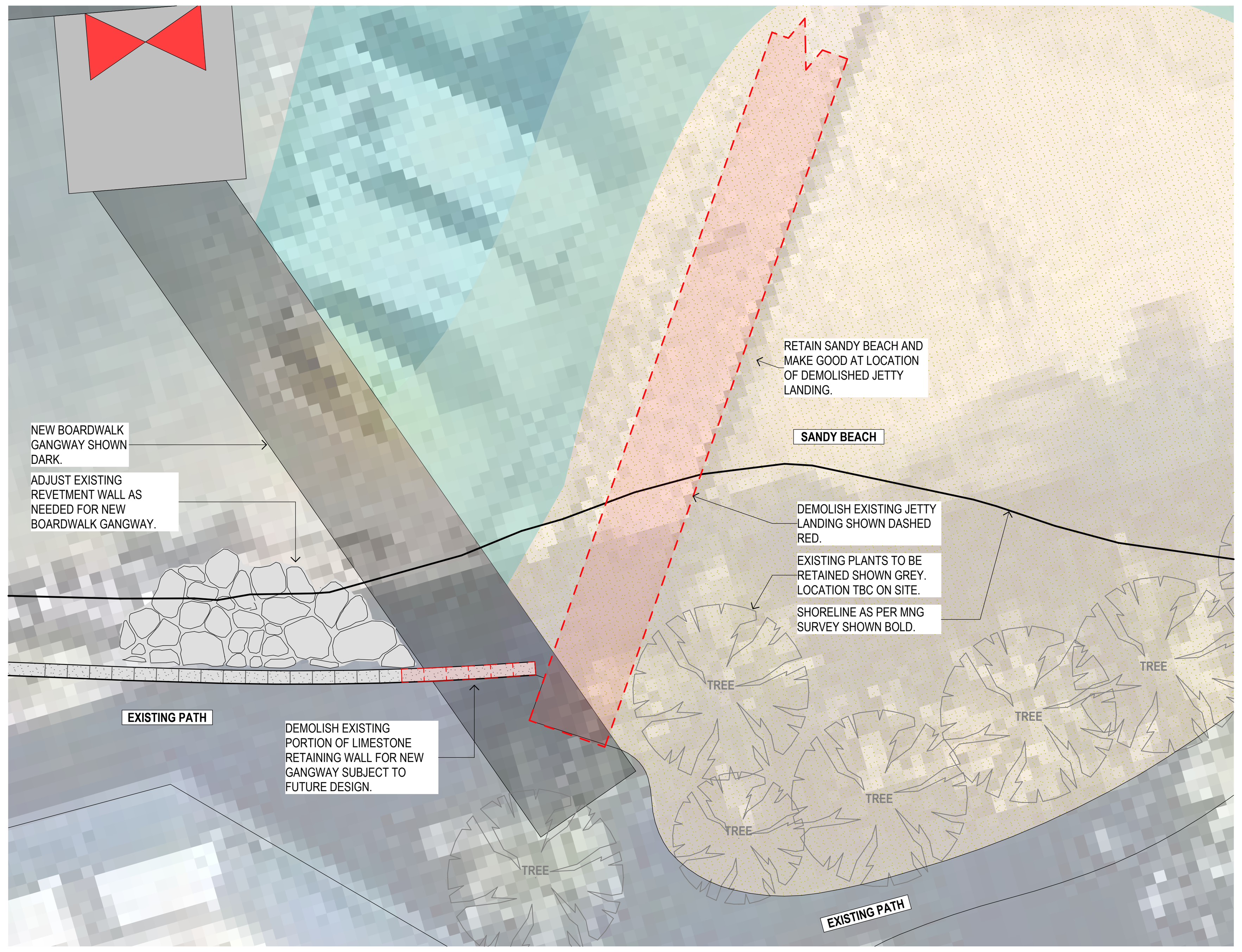
3 **JETTY D LANDING**
1:100

Table: Proposed Landscape Alterations

Jetty	Immediate Locality	Proposed Alterations	Proposed Plant Species
Existing Jetty A	Rock revetment wall, amphitheatre, path and beach.	Removal of jetty landing. Reinstatement of rock revetment wall. New path and garden bed.	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Existing Jetty B	Rock revetment wall and shoreline vegetation	Removal of jetty landing. Reinstatement of rock revetment wall and shoreline vegetation.	Type 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
Existing Jetty D	Rock revetment wall and shoreline vegetation	Removal of jetty landing. Reinstatement of rock revetment wall and shoreline vegetation.	Type 2, 11, 12, 13
Existing Jetty F	Limestone wall, rock revetment wall and shoreline vegetation	Removal of jetty landing. Reinstatement of rock revetment wall and limestone retaining wall.	Not required
Existing Jetty G	Sandy beach	Removal of jetty landing and portion of limestone wall. Maintain existing sandy beach.	Not required



4 **JETTY F ALNDING**
1:100



5 **JETTY G LANDING**
1:100

PIER 21 REDEVELOPMENT
PROPOSED LANDSCAPE PLANTING LAYOUT

date:	no.	description	by
24/09/24	01	Issued for Information	nc

REVISIONS

PLANT SPECIES LIST


TYPE 1: ACACIA PYCNANTHA


TYPE 2: ATRIPLEX


TYPE 3: CONOSTYLIS CANDICANS


TYPE 4: TREE BEDSTRAW (COPROSMA REPENS)


TYPE 5: DARWINIA CITRIODORA


TYPE 6: DIANELLA REVOLUTA


TYPE 7: FICINIA NODOSA


TYPE 8: LOMANDRA LONGIFOLIA


TYPE 9: MELALEUCA RHAPHIOPHYLLA


TYPE 10: PIMELEA FERRUGINEA


TYPE 11: ADRENANTHOS


TYPE 12: DIMORPHOTHECA ECKLONIS (NOT NATIVE)


TYPE 13: WESTRINGIA FRUTICOSA

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JOB PIER 21
ADDRESS 3 John St, North Freemantle
DWG Pier 21 Redevelopment - Landscape Planting Layout

SCALE	DRAWN	CHECKED	COMMENCED	JOB No.
as shown	nc	sr	Oct 2023	-

A1.8
Rev. 01

Date Printed: **Tuesday, 24 September 2024**

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[redacted]

From: [redacted]
Sent: Monday, 10 March 2025 9:17 AM
To: [redacted]
Cc: [redacted]
Subject: RE - Preliminary City of Fremantle Comments - Pier 21 Marina redevelopment - John Street, North Fremantle

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted],

Thank you for last week's meeting and discussion relating to Pier 21 Marina redevelopment.

The proposal as it stands the development of the Marina has investigated future improvements from a river-based, marina perspective. Notwithstanding the proposed improvements to this marina facility could be advantageous, there appears to be minimal attention and consideration given to the design of the public realm and its important interface and connection between land and river. The City would expect that any proposal to upgrade the facility would include equal design attention to the public realm, in such a key location.

To this end, the City would be seeking significant amendments which include retention of, or improvements to:

- Public, physical access to the water from the shore.
- Visual connection between the shore and river.
- No further expansion of water-based facility, unless clear public benefits can be ascertained.
- Car-parking provision/servicing for the facility, so there is no additional pressure on street parking from any changes to the water-based facilities.

Specifically, with regard to key elements of the proposal:

- The boardwalk layout and its apparent community benefit is not accepted as privatisation of the space in the future is inevitable. The current design effectively privatises the marina and restricts public access to the waterfront, undermining the community's access to the river. The design should prioritise public access to the river, sandy beaches, and parklands,
- The configuration of the current jetty fingers also with this boardwalk link has a significant visual impact from the public domain.
- The design of access points from the parkland to the marina boardwalk needs further integration. Marina infrastructure, such as landings, should not negatively impact the quality of public open space (POS) or sandy beaches. The northern beach area is a popular spot for young families and children due to its shallow, sheltered waters and sandy beach. A concern arises over whether the demolition of the existing jetty would impact sand accumulation in this area. Any changes to this aspect should be carefully assessed to ensure the beach remains a safe and enjoyable location for families.
- Public amenity associated with beaches, natural assets and landscaping is being negatively impacted and needs reconsideration. Kayakers currently face significant

challenges when navigating around the marina, as they must paddle a long distance and deal with fast-moving tides along the marina edge, which creates drag. The design must address these challenges by providing safer and more efficient access for kayakers.

To help digest and breakdown these summarised points above, further detail is provided below on specific elements of the proposal for clarity

General

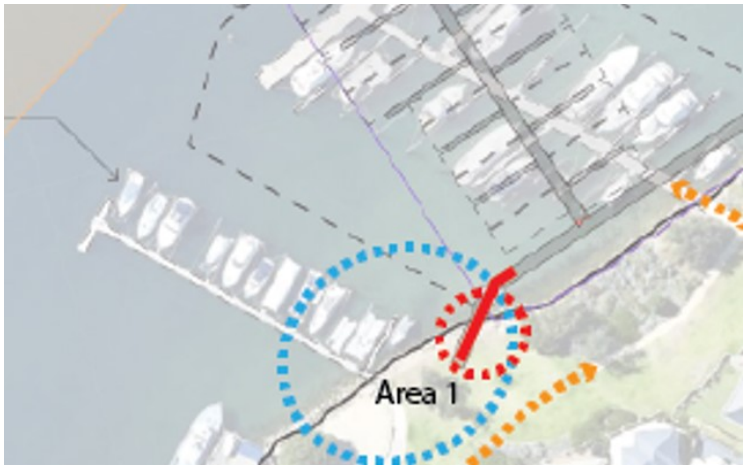
- The City notes the sea bed lease would increase to achieve larger 12m berths and easier manoeuvrability for boats in the Marina however this leads to an increase in the size and scale of the development on the riverfront. The visual and environmental impacts are of concern to the City with the associated overall amenity impact to the greater public realm.
- At this point in time, the City cannot see a justification for an increase in the size of the privately leased area of the river that would be in the public interest.
- The application references the 2013 North Fremantle Foreshore Management Plan by UDLA. However, the City has a more recent management plan, North Fremantle Foreshore Vegetation Management, completed by Ecoscape in 2017, refer North Fremantle Foreshore Vegetation Management - North Fremantle Swan River.pdf

Parking Provisions

- Upon reviewing the applicants statement apparently 48 bays (Within the Moorings development) are currently provided for the existing marina and they are not proposing to increase Berths. They state that the current car parking arrangement is to remain the same. The plans provided with the application show no detail on how and where these car abys are and how they will safeguard and maintain these bays for the ongoing use of the Marina.
- DBCA (or other govt agency) will need be a signature authority to any legal mechanism to enforce marina car bays within the neighbouring Moorings development to ensure no erosion of bays over the long-term.
- The City does not support any reduction to the current parking provision as street parking in John Street is already a major issue and in high demand.

Marina Infrastructure and Park Lawn (Area 1):

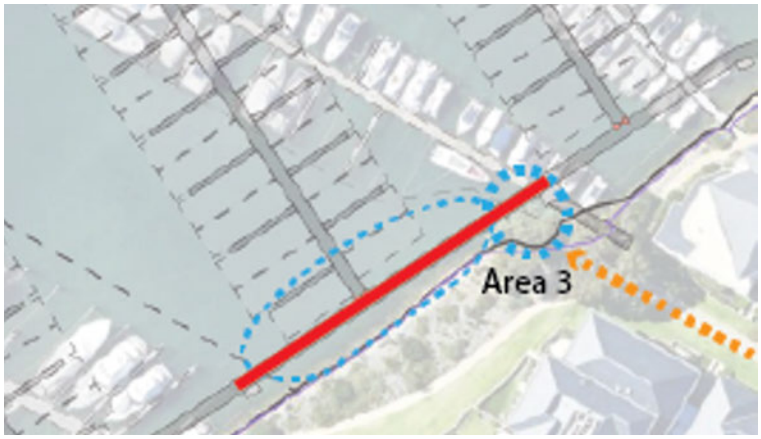
- The marina infrastructure should not extend into the park lawn area (Area 1), which serves as a key community connection to the river. This area is important for public enjoyment and recreation, the marina's layout must not encroach into this POS.



- Alternative connections: The marina landing could instead tie into existing entry points (Area 2) which would minimise the disruption to the park's use and to maintain and optimise public access to the river.
- A path connection should be installed, and location would be subject to the City's approvals, above orange dash indicative.

John Street Connection (Area 3):

- River access for recreation: The connection at John Street is crucial for people accessing the river for swimming or kayaking, and the marina should not obstruct this access. The current marina and boardwalk design is blocking this access (Area 3), and this needs to be readdressed to maintain and enhance public access to the river.
- City Requests: Find a way to reconfigure the marina so that it allows for unobstructed access to the river from John Street, preserving the recreational use of the area and protecting existing trees.



Area 4 (Landing and Configuration):

The marina and boardwalk configuration doesn't integrate well with foreshore creating low public amenity. The configuration should be revisited.

- Consider reconfiguring the layout to enhance the connection between the shore and river and by not creating left over unusable public spaces.

Marina and Board configuration:

- The area between the marina and boardwalk impacts the 'sandy beach' for the public, wildlife and ecosystems.
- There needs to be an independent environmental impacts assessment.

Species Selection:

1. *Acacia pycnantha:* It's important to follow the *North Fremantle Management Plan* when selecting plant species. *Acacia pycnantha* is native to the eastern states, so it may not be the most appropriate choice unless it's specifically listed in the plan. Consider selecting endemic Acacia species from the region of North Fremantle for greater ecological compatibility. Review the management plan to align with species guidelines.
2. *Atriplex species*: Ensure that the proposed species is also endemic to the area. Atriplex species native to the local region are better suited to the conditions and biodiversity goals of the project. Again, cross-check with the *North Fremantle Management Plan* to ensure the appropriate species are chosen.
3. General planting list: It's essential that all proposed species in the planting list are endemic to North Fremantle, as this will help preserve local biodiversity and contribute to habitat continuity. Verify the list against the management plan.

Irrigation and Establishment:

- If the landscape is not irrigated, it's crucial to plant during the winter period to allow plants to establish before the hotter months. Choose species that can survive without irrigation during establishment. Infill planting may be required in case of plant mortality after the first summer.

Tree Protection Zones (TPZs):

- All trees are to be retained and protected.
- An arborist reports must also be undertaken. The Tree Protection Zone (TPZ) for existing trees should be clearly outlined as per AS4970, not based on a fixed 500mm offset. The TPZ should be calculated based on the tree trunk diameter to ensure proper protection. Update the note to reflect this.

DPLH Activity notice (Section 18) Discussions:

- If Section 18 discussions have started, there may be additional considerations or requests related to landscape works that need to be incorporated into the plan. It's crucial to engage early to ensure compliance with any requirements.

Construction Management:

- No CMP has been provided with the proposal. This is vital to ensure no impact to the reserve.
- During construction, ensure that existing turf, paths, tree roots, planting, and public assets are protected. Any damage to these assets must be repaired immediately, and no storage or laydown areas should be established within the TPZs to prevent root damage. All trees are to be retained and protected.
- Access management: Consider how public access will be maintained during construction, especially if the works affect public spaces. It's crucial to provide clear pathways or detours where needed.

Dilapidation Reports:

- Dilapidation reports may be required for existing features, such as river rock walls, footpaths, vegetation, private property walls, and irrigation systems. This helps document the existing condition before construction begins and provides a reference in case of damage.

Community Consultation

The City strongly recommends that DBCA conduct specific community consultation in the locality for the following reasons:

- The significance of the proposal and impact on public amenity.
- The lack of community awareness (until recently, but after the close date for public submissions).
- The strong local opposition to the private marina in the first place.
- The current confusion around pen leases, car bays and strata agreements within the Mooring Development.
- The high likelihood of strong community opposition at some point (best to get onto this sooner rather than later).

Regards

[redacted]

[redacted]

Walyalup Civic Centre | 151 High Street | Fremantle
PO BOX 807 | Fremantle WA 6959

The City of Fremantle acknowledges the Whadjuk people as the Traditional Owners of the Fremantle/Walyalu area and we recognise their cultural and heritage beliefs are still important today.

[redacted]

From: [redacted]
Sent: Thursday, 5 June 2025 3:17 PM
To: [redacted]
Cc: [redacted]
Subject: RE- City of Fremantle's comments - Amended Proposal - Pier 21 redevelopment
Attachments: Pier 21 - Portside Park Renders.pdf; Pier 21 - Jetty F Renders.pdf; Pier 21_A1.0_Rev16 _Jetty A Area Future Jetty F_280425.pdf; Jetty F Beach Render.jpg; Portside Park Render.jpg

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted],

Thank you for referring the amended proposal for Pier 21 Marina redevelopment.

The amended proposal as it stands addresses the majority for the concerns raised in the City's email dated 10 March 2025. The improvements are not only from a river-based, marina perspective but have considered the interaction with the existing public recreation reserve and adjacent properties visual impacts. For simplicity reasons the below commentary has bene separated into Lease area comments and outside lease area comments as some works have been included beyond that of the current proposed lease area.

In summary there has been significant attention and consideration given in this redesign of the public realm and particularly its important interface and connection between land and river. The amended design are generally supported subject to the following conditions/ comments. For simplicity reasons I have broken the comments into within lease area and outside lease area.

INSIDE THE LEASE AREA

Parking Provisions

- As mentioned in the City's previous preliminary comments, the applicants statement stated that 48 car bays (Within the Moorings development) are currently provided for the existing marina and that these car bays whilst not proposed to increase would continue to be provided for the marina use. The City reiterates its precious major concerns that its vital this car parking provision continue to be provided for the Marina as no alternative parking arrangements are possible with City vested lands nearby. Again the amended plans provide no detail or the application documentation doesn't elaborate on what legal mechanism will be employed to ensure these existing car bays facilities are safeguarded and maintain the ongoing use for the Marina land use.
- DBCA (or other govt agency) will need be a signature authority to any legal mechanism to enforce marina car bays within the neighbouring Moorings development to ensure no erosion of bays over the long-term.
- The City does not support any reduction to the current parking provision as street parking in John Street is already a major issue and in high demand.
- Condition below recommended:

Prior to practical completion of the development hereby approved, a lease arrangement be entered into by the applicant which includes a minimum of 48 car bays to be provided for the Marina land use on the adjoining property at No.1 Corkhill Street, North Fremantle, to the satisfaction of the Department of Biodiversity, Conservation and Attractions. In the event that these car bays are not available as part of the lease agreement between the tenant and the landlord this approval shall lapse and be of no further effect.

Jetties:

- All mooring jetties must remain publicly accessible during daylight hours (7am – 6pm).
- Bench seats at the ends of the jetties must include backs and armrests to meet accessibility standards.
- Seating should be added to Jetties A and B for user comfort.

Boardwalk:

- Tree Protection Zone (TPZ's) areas must be clearly marked as outlined as per AS4970. Even with the same footprint, there is a risk of disturbing significant mature trees, particularly near John Street.
- An arborist reports must also be undertaken and all trees are to be retained and protected.
- Condition below recommended

Prior to commencement of works hereby approved an arborist report shall be submitted to the satisfaction of the Department of Biodiversity, Conservation and Attractions on advice from the City of Fremantle. The report shall include all existing trees within the Park and Recreation reserve which may be impacted by the development and these shall be protected through the implementation of a Tree Protection Zone for protection during construction. Additional information with regard to the tree protection zone requirements can be found here: https://www.fremantle.wa.gov.au/residents/trees-and-verges.

Swimming Nodes:

- These are welcomed additions some additional details are required for the swimming nodes and how these are attached to the jetties and lighting.

DPLH Activity notice (Section 18) Discussions:

- Again, if Section 18 discussions have started, there may be additional considerations or requests related to landscape works that need to be incorporated into the plan particularly where the new finger jetties intersect with the foreshore reserve. It's crucial to engage early to ensure compliance with any requirements.

Construction Management:

- No CMP has been provided with the proposal to date and this is vital to ensure no impact to the reserve occurs during construction stages of the development.
- During construction, ensure that existing turf, paths, tree roots, planting, and public assets are protected. Any damage to these assets must be repaired immediately, and no storage or laydown areas should be established within the TPZs to prevent root damage. All trees are to be retained and protected.
- Access management: Consider how public access will be maintained during construction, especially if the works affect public spaces. It's crucial to provide clear pathways or detours where needed.
- Condition below recommended:

Prior to lodgement of a Building Permit or Demolition Permit application for the development hereby approved, a Construction/Demolition Management Plan shall be submitted and approved, to the satisfaction of the City of Fremantle addressing, but not limited to, the following matters:

a) Use of City car parking bays for construction related activities;
b) Protection of infrastructure and street trees within the road reserve;
c) Security fencing around construction sites;
d) Gantries;
e) Access to site by construction vehicles;
f) Contact details;
g) Site offices;
h) Noise - Construction work and deliveries;
i) Sand drift and dust management;
j) Waste management;
k) Dewatering management plan;
l) Traffic management; and)
m) Works affecting pedestrian areas.

The approved Demolition and Construction Management Plan shall be adhered to throughout the demolition of the existing building on site and construction of the new development.

Dilapidation Reports:

- Dilapidation reports will also be required for existing features, such as river rock walls, footpaths, vegetation, private property walls, and irrigation systems. This helps document the existing condition before construction begins and provides a reference in case of damage.
- The owner is advised that an obstruction permit may be required from the City for any future obstruction of the footpath of the Parks and Recreation reserve. An application for obstruction permit can be found via www.fremantle.wa.gov.au.
- Condition below recommended:

Prior to commencement of works hereby approved, the applicant shall submit a Structural Engineers / Dilapidation Report to the satisfaction of the Department of Biodiversity, Conservation and Attractions on advice from the City of Fremantle which includes the integrity of the existing adjoining foreshore reserve and infrastructure, so to ensure that any works alleviate any damage that may occur as part of the proposed development.

OUTSIDE THE LEASE AREA

- The City acknowledges the need for public realm improvements to integrate Pier 21 with its surroundings and such changes are encouraged. However the proponent must clarify the proposed works outside the lease area and engage with the City to ensure appropriate outcomes. Any works in these areas will require a City-led community engagement process.
- The landscape design also must be accessible to a diverse range of users, ensuring inclusivity and ease of access for all individuals.
- All designs for implementation along the river must comply with Section 18 requirements, with early engagement with the Whadjuk Aboriginal Corporation as a prerequisite. This may result in the inclusion of additional cultural signage or design elements, such as

seating nodes. Flexibility in the design process must be accounted for to allow this integration.

River Amphitheatre Area:

- The pathway layout should provide clear and logical connections to the broader pedestrian and cycle network.
- While the beach area is a positive addition, the limestone seating wall creates a harsh barrier to the river. It lacks integration, shade and habitat value.
- An ecologically sensitive design is necessary to balance public access with river health and biodiversity, designed by a landscape architect and ecologist.
- The proposed lawn between the steps is not supported due to maintenance challenges and its negative ecological impact.
- The proposed shelter hut does not reflect North Fremantle's character and appears to be a generic solution, we would need a larger shelter with picnic amenity.
- More public bench seating with arms and backs are required along the walkway.
- Clarification is needed on how kayaks will access the river.

New Jetty:

- The small new jetty must be designed as a community-driven asset that promotes swimming, fishing, and connection to the river.
- this facility would need to undergo community consultation with the greater Fremantle community.
- As this is a proposed new community asset (Small Jetty) is being proposed by the proponents for this marina development application it is only considered reasonable that the jetty be installed or a bond or other mechanism be used / conditioned to ensure this small jetty is actually installed for the greater public community benefit. Whilst the current area is outside of the current lease area, the City understands it would need to enter into a lease/ permit process with DBCA for this small jetty to be constructed, which the City would be willing to do, but the cost for its installation should be at the developers responsibility.
- Condition

Prior to commencement of the development hereby approved, the applicant either:

a) pay a bond with the City of Fremantle for the entire cost of the small jetty to Portside Park installation, or

b) Within 24 months of the date of this decision the applicant obtain all correct approvals and Permits from responsible authorities and install the small jetty to Portside Park to the satisfaction of the Department of Biodiversity, Conservation and Attractions on advice from City of Fremantle.

Shark Net:

- Whilst in principle this is also another facility the City is willing to explore, further clarification is required regarding ownership, management, and maintenance of the proposed shark barrier.
- Again this facility would need to undergo community consultation with the greater Fremantle community.
- It must also be confirmed whether the shark barrier will be seasonally removed.
- DDA-compliant access must be provided to the river beach via permanent solution and temporary beach matting.

Southern Area:

- Safe and inclusive access to the southern area must be provided, with clear paths connecting it to the broader network. The design should ensure that connections are universally accessible and user-friendly.

GENERAL COMMENT:

- All landscape elements, whether inside or outside the lease area, must be designed by a qualified landscape architect. These elements should be integrated with their surroundings and subject to City approval.

Regards

[redacted]
[redacted]
Walyalup Civic Centre | 151 High Street | Fremantle
PO BOX 807 | Fremantle WA 6959

The City of Fremantle acknowledges the Whadjuk people as the Traditional Owners of the Fremantle/Walyalu area and we recognise their cultural and heritage beliefs are still important today.

Government of Western Australia
Department of Water and Environmental Regulation

Your ref: 2024-4875
Our ref: DMO 6069
Enquiries: [redacted]
Email: [redacted]

Swan and Canning Waterways Branch
Department of Biodiversity, Conservation and Attractions
Planning authority
17 Dick Perry Avenue
Kensington WA 6983

By email rivers.planning@dbca.wa.gov.au

Dear Swan and Canning Waterways Branch

DEVELOPMENT APPLICATION NUMBER 2024-4875 – SWAN RIVER - LOT 300 ON PLAN 47450 - PIER 21 MARINA DEVELOPMENT

I refer to your email dated 13 November 2024 to the Department of Water and Environmental Regulation (the department) regarding an application to the Department of Biodiversity, Conservation and Attractions (DBCA) for the proposed development of the above-mentioned lot.

As per the requirements under section 58(6)(b) of the *Contaminated Sites Act 2003* (CS Act), advice is required as to the suitability of the land for the proposed development. The department understands that the proposed development comprises redevelopment of the Pier 21 Marina including replacement of jetties, construction of a boardwalk and landscaping.

Part of Lot 300 on Deposited Plan 47450 (the site) was classified under the CS Act as *possibly contaminated – investigation required* on 27 October 2010.

The classification was based on sediment investigations undertaken in 2010. The investigations found that marine antifouling agents (tributyltin) and metals were present in sediments at concentrations exceeding the relevant ecological assessment criteria. Hydrocarbons were also found to be present in sediments however below the relevant assessment criteria.

Historically, hydrocarbons have been found to be present in soil and sediment at the site associated with former fuel storage tanks. The department understands that remedial works including removal of fuel storage tanks, have historically been undertaken at the site.

Based on available information and as there is no change in land use proposed for the site, the department has no objection to the proposed development of and recommends that the approval should not include a contamination condition.

Prime House, 8 Davidson Terrace Joondalup Western Australia 6027
Locked Bag 10 Joondalup DC WA 6919
Telephone: 08 6364 7000 Facsimile: 08 6364 7001
www.dwer.wa.gov.au

However, given the risks associated with the potential disturbance of impacted sediment and soils during development works, the department recommends that the following advice note be applied to any approval granted by DBCA:

Advice

An appropriate management plan should be prepared for the proposed works. The management plan should include appropriate sediment management measures to limit the disturbance of sediment and potential impacts to the river, and health and safety measures for potential exposure to potentially impacted soil and sediment.

Acid sulfate soil risk mapping indicates that the site lies within an area identified as having a high to moderate risk of acid sulfate soils occurring within three metres of the natural soil surface.

As the proposed development works have the potential to disturb acid sulfate soils the department recommends that the following advice note be applied to any approval granted by DBCA:

Advice

Acid sulfate soils (ASS) risk mapping indicates that the site is located within an area identified as representing a high to moderate risk of ASS occurring within 3 metres of the natural soil surface. Please refer to Department of Water and Environmental Regulation's acid sulfate soil guidelines for information to assist with the management of ground and/or groundwater disturbing works. https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-acidsulfatesoils-guidelines

If you have any queries in relation to the above, please contact Environmental Officer, [redacted].

Yours sincerely

Andrew Miller
SENIOR MANAGER
CONTAMINATED SITES
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

4 December 2024

[redacted]

From: [redacted]
Sent: Tuesday, 17 December 2024 3:50 PM
To: Rivers Planning
Cc: Navigational Safety
Subject: RE: Referral for Comment - 2024-4875 - Part 5 - Removal reconstruction new floating pontoon and public boardwalk - Pier 21 Mariana, Corkhill St and John St, North Fremantle - Pier 21 Marina Pty Ltd

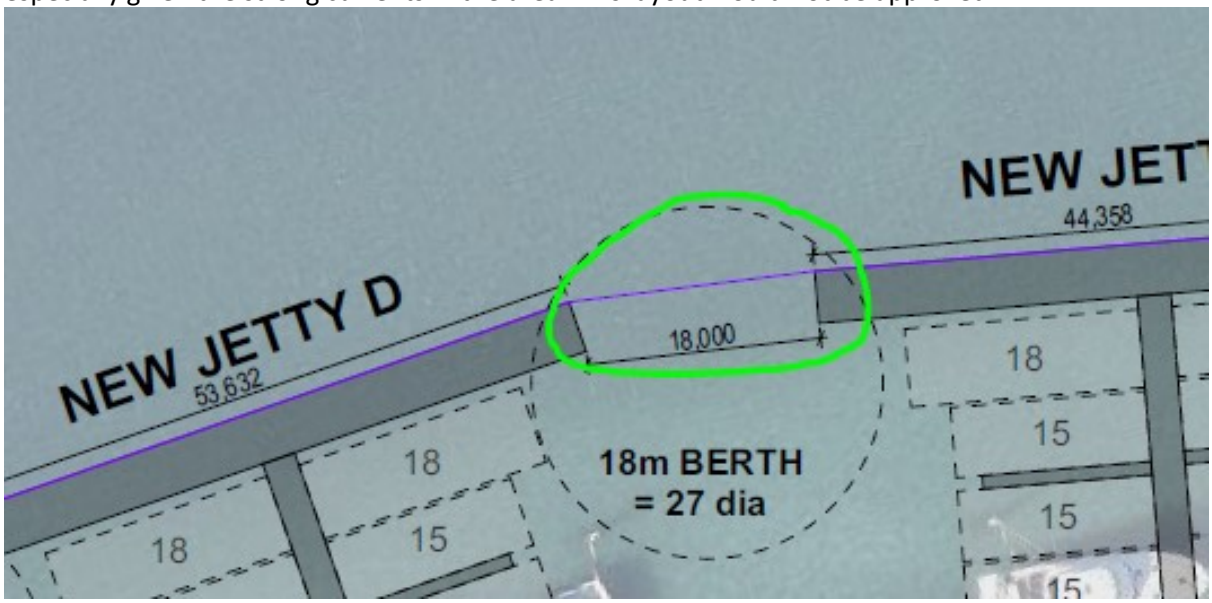
OFFICIAL

Good afternoon,

Thank you for your email below dated 7 November 2024 requesting comment from the Department of Transport (DoT) Maritime in relation to the above mentioned proposal. DoT Maritime has considered this proposal as outlined in the below links and has the following comments:

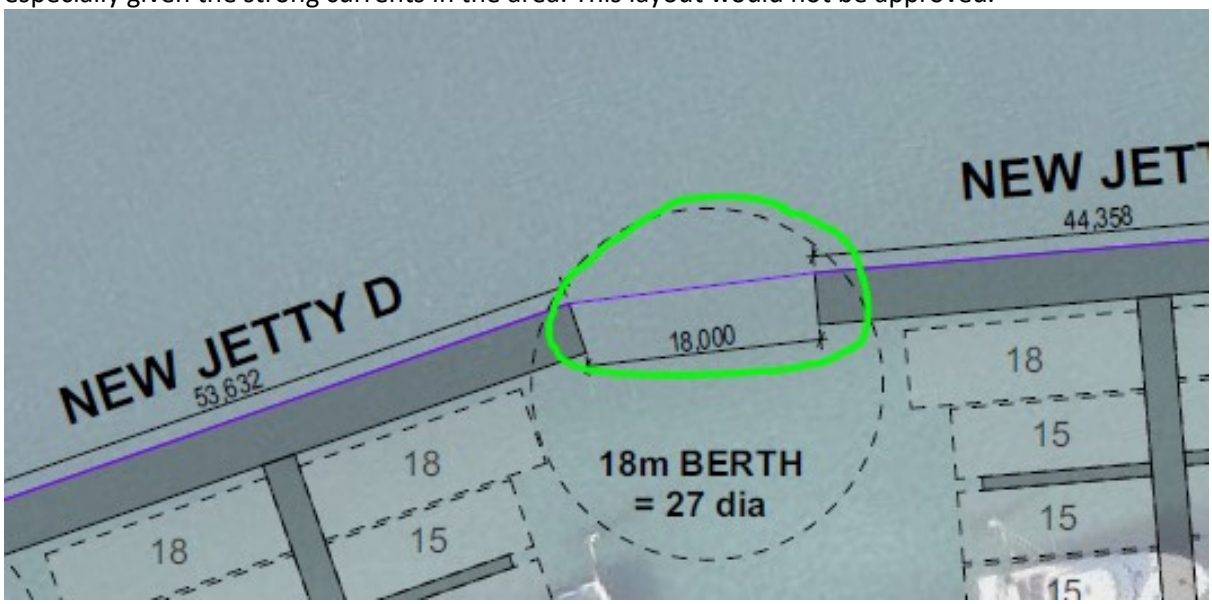
There are some issues raised (see below) that require attention/response by the proponent to ensure it meets Australian Standards & DoT's Marina guidelines. Coastal Facilities Operations cannot comment until such time the matters raised have been addresses/responded to accordingly.
The following concerns are;

Fairways / Internal Channels: The fairways and internal channels appear to meet the minimum requirements of AS3962 (1.5L). However, the pinch point at the T-Head of each fairway / channel does not meet this minimum requirement. This pinch point, being only 18m wide, could pose a safety concern for vessels entering and exiting the pen system, especially given the strong currents in the area. This layout would not be approved.



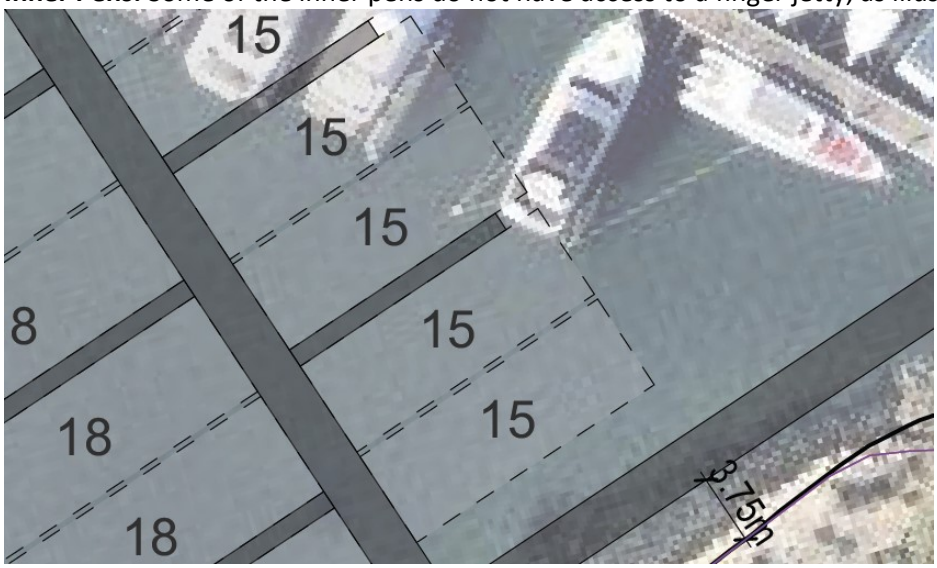
Berth Widths: While not all berth widths could be confirmed, they generally appear to comply with AS3962.
Finger Jetty and Walkway Widths: Unable to review as no dimensions are shown.
Mooring Piles: Mooring piles are not shown between berths. These should be considered, particularly for the larger pens.

Fairways / Internal Channels: The fairways and internal channels appear to meet the minimum requirements of AS3962 (1.5L). However, the pinch point at the T-Head of each fairway / channel does not meet this minimum requirement. This pinch point, being only 18m wide, could pose a safety concern for vessels entering and exiting the pen system, especially given the strong currents in the area. This layout would not be approved.

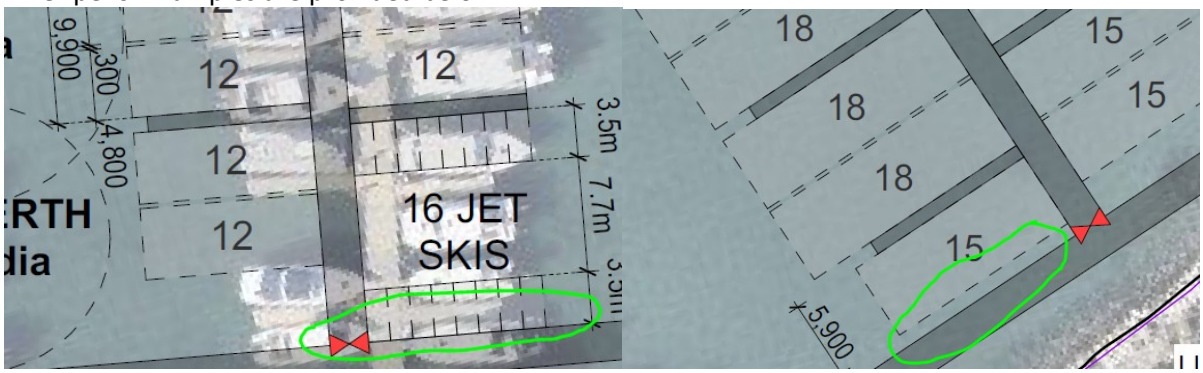


Berth Widths: While not all berth widths could be confirmed, they generally appear to comply with AS3962.
Finger Jetty and Walkway Widths: Unable to review as no dimensions are shown.
Mooring Piles: Mooring piles are not shown between berths. These should be considered, particularly for the larger pens.

Inner Pens: Some of the inner pens do not have access to a finger jetty, as illustrated below.



Security: There are potential security concerns with people on the public boardwalk being able to access some of the inner pens. Examples are provided below.



From a navigational safety perspective
Comments:
Extending the jetties further into the navigational channel in an area which has been an area of attention due to the amount of wake from passing vessels is not desirable. Wave attenuation devices on the jetty heads would need to dissipate the wash created from passing traffic rather than bouncing back and creating turbulent water for all waterway users including paddle craft.

The movement of Nav Marker 847 would need to be relocated as reducing the distance between the jetty head and passing vessels is not favourable. Vessels transiting through this area can create large amounts of wake especially when going against the tidal flow. The extended distance of jetties C, D & E will protrude into what is now part of the navigable channel and reduce the ability to see the next Nav Aid (862) when transiting downstream. The new location needs to be carefully considered and the line of sight for navigation vessels factored in – please contact navigational.safety@transport.wa.gov.au for positions on navigational aids once jetty design has been refined.

A buffer of 15m between the jetty heads and the relocated navigational aids is recommended to ensure vessels pass at a safe distance reducing conflict of vessels exiting the pen sets into the channel. This also enables for a safe passage for passive craft to travel downstream and out of the flow of main motorised vessel traffic. This will be a reduction overall of the navigational channel by the jetty extension and 15m buffer. From a waterway safety perspective, the remaining channel is wide enough to accommodate two-way vessel traffic in this area at approximately 100m. There is high probability for public to object. Consultation with waterway user groups in this area and commercial tour operators is recommended to ensure there are no adverse impacts to waterway use.

Construction works are requested to not coincide with works on the Fremantle Traffic Bridge, whilst they are geographically separated, on water traffic management is being undertaken where there is a potential for marine traffic to congregate in this area whilst the bridge channels are obstructed. With the boat ramp adjacent there are potential issues with space to safely manoeuvrer should there be additional construction barges in this area.

All on water operations must be conducted in accordance with the relevant marine legislative provisions.

A Temporary Notice to Mariners (TNTM) must be issued by the DoT outlining the scope of the works, the works area, navigational marking (lighting) and dates of the works, prior to commencement. The applicant or works contractor is to provide notification of the works to the DoT a minimum of 21 days prior to the works commencing to enable a TNTM to be published, by email to: navigational.safety@transport.wa.gov.au

Notification of any request for an extension of the works period must be made by the applicant or works contractor by email to: navigational.safety@transport.wa.gov.au prior to expiry of the scheduled works period

Confirmation of completion of the works must be made by the applicant or works contractor by email to: navigational.safety@transport.wa.gov.au once the works have been completed.

Regards,

[redacted]
5 Newman Court, Fremantle WA 6160
Tel: (08) 92168016 | Mob: 0436 664 789
Email: Kathryn.Davies@transport.wa.gov.au | Web: www.transport.wa.gov.au

We acknowledge the Traditional Custodians of this land and pay respect to the Elders past and present.

From: Rivers Planning <rivers.planning@dbca.wa.gov.au>
Sent: Thursday, 7 November 2024 1:27 PM
To: Navigational Safety <Navigational.Safety@transport.wa.gov.au>
Subject: Referral for Comment - 2024-4875 - Part 5 - Removal reconstruction new floating pontoon and public boardwalk - Pier 21 Mariana, Corkhill St and John St, North Fremantle - Pier 21 Marina Pty Ltd

Good afternoon,

PART 5 – 2024-4875 – SWAN RIVER - LOT 300 ON PLAN 47450, CORKHILL STREET AND JOHN STREET, NORTH FREMANTLE - REMOVAL AND RECONSTRUCTION OF NEW FLOATING PONTOON JETTIES AND PUBLIC BOARDWALK IN THE SWAN RIVER AT PIER 21 MARINA - PIER 21 MARINA PTY LTD

The Department of Biodiversity, Conservation and Attractions (DBCA) has received an application for the above mentioned development. The application can also be downloaded from our website here https://www.dbca.wa.gov.au/licences-and-permits/riverpark-development-and-planning/removal-and-reconstruction-new-floating-pontoon-jetties-and-public. Your department is invited to provide comments and recommendations considered relevant to this proposal.

Prior to the report being prepared, the application has been referred to relevant agencies for comments and advice. Accordingly, please provide a response to this office within **42 days** of receipt of this email. Should you not be able to respond within this time, please notify the department as soon as possible, outlining the reasons for the delay and a date when a response may be available.

In preparing your response, please be aware that it may be made available for viewing by the public, unless otherwise requested.

Please forward your response via email to rivers.planning@dbca.wa.gov.au. Should there be any queries regarding this matter, please contact rivers.planning@dbca.wa.gov.au or alternatively on 9278 0900. In all correspondence please quote the reference number **2024-4875**.

Yours sincerely

Statutory Assessments
Swan and Canning Waterways Branch

Department of Biodiversity, Conservation and Attractions
17 Dick Perry Avenue, Kensington WA 6151
Locked Bag 104, Bentley Delivery Centre WA 6983
Email: rivers.planning@dbca.wa.gov.au Web: www.dbca.wa.gov.au

We acknowledge the Whadjuk people as the Traditional Owners of this land

[redacted]

From: [redacted]
Sent: Wednesday, 30 April 2025 12:29 PM
To: [redacted]
Cc: Navigational Safety; [redacted]r; Rivers Planning; [redacted](Nav Safety)
Subject: PART 5 – 2024-4875 – SWAN RIVER - LOT 300 ON PLAN 47450, CORKHILL STREET AND JOHN STREET, NORTH FREMANTLE - REMOVAL AND RECONSTRUCTION OF NEW FLOATING PONTOON JETTIES AND PUBLIC BOARDWALK IN THE SWAN - Engineers Report - Wave Reflection from Attenuators
Attachments: 1981-MEM-001 - WakeWaveReflectionRev2.pdf

OFFICIAL

Good afternoon all,

Please be advised that a revised report has been provided to Department of Transport where a review of the expected wake wave reflection for the proposed Pier 21 Marina redevelopment has been undertaken.

Based on the detail of this report, it is understood that the redevelopment of the marina with the installation of wave attenuation floating pontoon jetties will not adversely impact the safe navigation of large, small and passive craft navigating in the area.

It is accepted that whilst there is expected to be some level of wake wave reflection back into the navigable channel, modelling suggests that it will be of a similar, if not lesser effect that the current reflection of wake waves when considering the current arrangement of the jetties and large vessels berthed on the outer extremity.

In a combination of the new attenuators and the reconfiguration of berthing arrangements of the larger vessels to the northern and southernmost fingers, it is expected that the visibility of craft navigating/paddling in close proximity to the T heads will be improved enabling a operators to anticipate the movements of vessels navigation out of the pen sets and subsequently ascertain if a risk of collision exists and respond accordingly.

The relocation of an existing navigational aid and the positioning of an additional navigational aid will assist in keeping an appropriate separation from vessels transiting in the navigable channel and those entering and exiting the pen sets to assist in safe navigation.

A formal agreement on the relocation and installation of the navigational aids will be drafted by Department of Transports Legal Team for the installation requirements and handover of assets to DoT for future and ongoing management post install.

Regards,

[redacted]
[redacted]
5 Newman Court, Fremantle WA 6160
Tel: (08) 92168016 | Mob: 0436 664 789
Email: Kathryn.Davies@transport.wa.gov.au | Web: www.transport.wa.gov.au

Government of Western Australia
Department of Transport

Empowering a thriving community

We acknowledge the Traditional Custodians of this land and pay respect to the Elders past and present.

Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

Our ref: ADV-10006480 / A00010-24
Enquiries: [redacted]

Rivers Planning Referrals
Department of Biodiversity, Conservation and Attractions

Via email: rivers.planning@dbca.wa.gov.au

Dear Sir/Madam

ABORIGINAL CULTURAL HERITAGE – REQUEST FOR ADVICE – 2024-4875

Thank you for your enquiry dated 8 November 2024 regarding the proposed removal and reconstruction of new floating pontoon jetties and public boardwalk in the Warn River at Pier 21 Marina.

I understand that the proposed works include:

- Rationalising 3 x river reserve lease area boundaries into a single lease;
- Removal of 7 jetties and replacing these with 6 jetties (2.5m wide);
- 4 x access ways to the jetties;
- 6x T heads for wave attenuation (approximately 4m wide);
- 73 full length fingers;
- Eventual replacement of Jetty G with similar floating jetty;
- Sliding access doors to each jetty, controlled by fob access;
- Jetties are to be constructed using concreate floating pontoons secured by steel piles with HDPE sleeves;
- Removal of three redundant riverbank crossings and rehabilitation of shoreline vegetation;
- Introducing a public use boardwalk (280m x 2.5m) which runs parallel to the shoreline connecting Portside Park to Gilbert Fraser Reserve.

I wish to advise the following:

A review of the Register of Places and Objects as well as the Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Database concludes the subject area intersects with the actual boundary of Aboriginal Site Swan River (ID 3536).

Therefore, based on the current information held by DPLH, approvals under the *Aboriginal Heritage Act 1972* (AHA) are required. I would suggest that the proponent applies for Section 18 Consent to undertake the works. The proponent should also undertake consultation with Whadjuk Aboriginal Corporation prior to the

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submission of their application. Guidelines for Section 18 applications and consultation requirements are available on the DPLH website.

I also advise the following:

- The approval of the development application does not impact the Aboriginal heritage of the area;
- Given that the approval of the development application will facilitate development in the area the proponent needs to contact the Aboriginal Heritage Conservation Team for their own advice prior to the commencement of works;
- It should be emphasised to the proponents that the approval of the development application does not count as approval under the AHA.

If you have any further questions regarding the AHA, please send enquiries to the ACHKnowledge Portal.

Should you have any queries in relation to the above, please contact me on (08) [redacted] or email [redacted].

Yours sincerely

[redacted]

[redacted]

ABORIGINAL HERITAGE CONSERVATION

22 November 2024

Department of **Planning, Lands and Heritage**

GOVERNMENT OF WESTERN AUSTRALIA

Your ref: 2024-4875
Our Ref: 05-192-11
Enquiries: [redacted]
E: [redacted]

Statutory Assessments
Swan and Canning Waterways Branch
Department of Biodiversity, Conservation and Attractions
Locked Bag 104, Bentley Delivery Centre WA

Attention: [redacted]

Dear [redacted],

PART 5 – 2024-4875 – SWAN RIVER – LOT 300 ON PLAN 47450, CORKHILL STREET AND JOHN STREET, NORTH FREMANTLE – REMOVAL AND RECONSTRUCTION OF NEW FLOATING PONTOON JETTIES AND BOARDWALK IN THE SWAN RIVER AT PIER 21 MARINA – PIER 21 MARINA PTY LTD

Thank you for your email dated 17 February 2025 seeking comment on the above application submitted under Part 5 of the *Swan and Canning Rivers Management Act 2006* and its connection with the development approval of the adjacent site.

The Western Australian Planning Commission (WAPC) approved the development of 45 Residential Units (apartments known as The Moorings) under the Metropolitan Region Scheme on 29 December 1998 at Lot 101 Corkhill/John Streets, North Fremantle (WAPC Ref: 05-192-10 and 05-192-11). A separate approval was granted under the City of Fremantle Local Planning Scheme No. 4 (LPS4) with the City of Fremantle being the responsible authority.

Condition 14 of the WAPC approval which links the apartment building with the adjacent Pier 21 Marina states as follows:

"Each residential unit shall be allocated a marina pen. The marina pen shall not be used or occupied independently of the residential unit to which it is allocated."

The condition was imposed to ensure the amount of parking provided was sufficient to accommodate the parking demand the residential units as the number of parking bays provided was based on each unit being allocated a pen. It was proponent's intent at the time to market the apartment development based on unit entitlements to a pen.

I understand the current Part 5 proposal for the Pier 21 Marina would remove the pen allocation through the preparation of a new legal agreement with apartment owners to provide a marina pen if and when they were to request one.

There was logic to allocating a marina pen to each apartment when the development was approved in 1998 based on parking demand at the time. There is merit in the current provision of parking to be reconsidered that balances the current parking demands of both the marina and the apartments.

It is recommended that the Department of Biodiversity, Conservation and Attractions consult with the City of Fremantle to determine the current parking demand for the apartments and consistency with LPS4 and the current Residential Design Codes. If the City of Fremantle is satisfied that the current parking arrangements are satisfactory given the demand, and acceptable given the current planning framework, there may be merit in de-coupling the apartments and marina pens going forward or reducing allocation.

Please do not hesitate to contact [redacted] should you require further clarification on the matter.

Yours sincerely

[redacted]

[redacted]
Land Use Planning

26 February 2025

Summary of public submissions – Part 5 application for Pier 21 Marina Redevelopment (2024/4875)

Issue	DBCA response
OBJECTION	
Amenity - views	
The repositioning of the jetties will impact views negatively from the Moorings apartments.	The redevelopment is expected to result in an alteration to the current views from the adjacent apartments due to the realignment of some jetties. However, the fundamental character of the view – comprising the Swan River, boats and marina jetties - will remain consistent with the existing landscape. Further, the overall elevation of the jetties will be reduced from 1.5m to 0.5m due to the replacement of fixed jetties with floating jetties. A visual impact assessment has been prepared to evaluate potential impacts and found no significant impacts to visual amenity.
Larger boats will spoil the amenity.	There may be some impact to visual amenity due to the presence of larger vessels and extended jetties. However, the overall character of the views will remain consistent with the existing landscape. A visual impact assessment has been prepared to evaluate potential impacts and found no significant impacts to visual amenity.
The 18.4% larger lease area will impact visual amenity. A decrease would be more appropriate.	The updated proposal proposes an increase in lease area of 12.6% and is in part, due to the requirement to comply with the requirements outlined in current Australian Standards AS 3962:2020 – *Guidelines for design of marinas*. There is expected to be some impact to visual amenity as a result of some larger boats and increased length of jetties. Overall, the fundamental character of the views will be consistent with the existing landscape. A visual impact assessment has been prepared to evaluate potential impacts and found no significant impacts to visual amenity.
The extension of the jetties into the river will impact visual amenity.	The jetties will extend further into the river and may result in a slight alteration of the views. A visual impact assessment has been prepared to evaluate potential impacts and found no significant impacts to visual amenity.
The floating boardwalk will impact the amenity of the river.	The boardwalk will be floating at water level. Given the height difference between the water and the land adjacent, the boardwalk will only be partly visible.

Issue	DBCA response
Further information is requested on the foreshore rehabilitation proposed. Large trees are not supported as the views will be obstructed.	DBCA supports the rehabilitation of the crossover points where jetties are being removed. A landscape plan will be a requirement of approval and may include some tree species to assist with the improvement of environmental values of the foreshore area.
Viewshed to river down Harvest Road is blocked by Water Police. Viewshed down Corkhill Street and Turton Street similarly blocked by buildings.	Noted. The current proposal does not further alter any viewsheds.
Amenity – other	
Concern that jet skis will be berthed at the marina and be disruptive of community peace.	It is expected that the marina will manage the behaviour of all its pen holders including jet skis.
Ensure lighting is low level and lights don't shine back towards the apartments.	Lighting will be the minimum required for security and safety. A Lighting Plan is required as a condition of approval to ensure this. The obtrusive effect of illumination will be required to be reduced to minimise the impact on the ecosystem as per AS 4282:1997 – *Control of the obtrusive effects of outdoor lighting*, and the National Light Pollution Guidelines for Wildlife.
The proposal is out of scale with its site and imposes on its surroundings. Vessels are also out of scale with the surroundings.	In accordance with Corporate Policy No. 42 proposals should enhance and protect the character and landscape setting of the Swan Canning river system. The jetties will extend further into the river and may result in a slight alteration of the views, however the nature of the view will not be significantly changed. Potential impact to visual amenity A visual impact assessment found no significant impacts to visual amenity.
Concern that party boats are anchoring in Rocky Bay on weekends causing noise issues.	Noted. Not relevant to this proposal.
Community Benefit	
Does not support the removal of Jetty A because it is used by families for walking, fishing, swimming.	Jetty A is being removed as it is in a state of disrepair. The applicant proposes to construct a community use jetty at Portside Park near the location of Jetty A. This will allow for enhanced public access to Portside Park beach area and use of the area.
Removing Jetty A may result in conflict between boat users and fishing people.	The updated proposal includes construction of a new community use jetty at Portside Park. The jetty will be for fishing and for pulling up boats to pick up or set down guests. This is not expected to create conflict.

Issue	DBCA response
Support retention of Jetty A for community use only.	The applicant proposes to remove Jetty A and construct a community use jetty at Portside Park. This will allow for enhanced public access to Portside Park beach area and use of the area.
The boardwalk has limited benefit for the community. It would be better to enhance the existing foreshore pathway by creating smaller paths with picnic areas and seating for people to sit and relax and interact with nature or exercise equipment.	The rehabilitation of crossover points being removed will explore opportunities for bench seats and enjoyment of the river. A landscape plan will be required as a condition of approval.
Boardwalk is expensive and unnecessary and potentially unsafe.	Potential safety issues will be managed through the detailed design of the jetties and boardwalk. The boardwalk provides some alternative public access.
Support for improved public access to the Swan River and preservation of natural foreshore.	The amended proposal seeks to improve public access to the river and natural foreshores through the removal of Jetty A and the crossover of Jetty G. The proposed community use jetty is expected to provide a public benefit and enhance use and enjoyment of the foreshore.
Public access to the river and foreshores has been restricted.	The amended proposal seeks to improve public access to the river and foreshores through the removal of Jetty A and the crossover of Jetty G.
Only a small portion of the North Fremantle foreshore is available to the public for swimming and recreation. The Pier 21 area is one of the few remaining opportunities for access to deep water.	Noted and agreed that existing access to the foreshore is somewhat limited by landform and existing development. DBCA considers the revised plans assist with improving access to the water and the foreshore for small craft launching, swimming, fishing and beach access.
Support for community access to the jetties.	Noted. Individual jetties proposed to be locked at night only. Public boardwalk and community use jetty to remain accessible 24/7.
Environmental	
The boardwalk will increase issues caused by people dumping rubbish in the river.	The concern is noted. This issue is expected to be managed by the Marina.
The area is habitat for swans. The swans use the jetties to protect their cygnets from seagulls. What studies have been done to ensure the development will have no detrimental impact on the swan's habitat?	No specific studies have been undertaken with regard to this proposal. However, in general, access to the water from the land is being improved at the southern and northern ends of the marina. Swans are not known to nest in the marina area. There may be some temporary disturbance during works.

Issue	DBCA response
The floating marina and boardwalk may impact local dolphin feeding behaviour.	The space between jetties B and C will be retained with no boardwalk.
Lease area	
Questions the motivation for including the area between jetties B and C in the lease. Concern there may be further expansion plans.	The open water between jetties within yacht clubs and marinas along the Swan River is typically included within the boundaries of lease areas. DBCA is not aware of any further plans for expansion that impact this area.
The proposal privatises the foreshore between new jetties B and C which was historically available for public use.	The open water between jetties within yacht clubs and marinas along the Swan River is typically included within the boundaries of lease areas. It is not clear why the space between Jetty B and C was not included in the existing lease area. The space is publicly accessible regardless of whether it is in the lease or not and can continue to serve as an access route from the foreshore to the river for the community. This is intended to be reflected in the lease agreement.
Support for a reduction in lease size particularly between Harvest Road and John Street.	The lease size is proposed to increase by 12.6% to allow for compliance with current Australian Standards. DBCA considers the amended plans provide sufficient public access and community benefit to justify the minor increase.
Access	
The proposal reduces public access to foreshores and the river.	The amended proposal includes increased access to foreshore reserves. The lease areas have been retracted from the beach areas at the north and south to allow for public use and enjoyment.
Maintain the existing small river craft access at the end of John Street.	The proposal will not prevent public access to/through the fairway between Jetties B and C or any other fairways. The updated plans include a ‘lilypad’ to allow for safe entry to the water at the end of John Street which will maintain and improve small river craft access.
Boardwalk	
The boardwalk is not necessary as there is access along the land.	There is an access pathway along the land, however some sections are narrow. DBCA considers that the boardwalk will provide an alternative experience for community access and enjoyment.
The boardwalk is unsightly and replicates an existing walkway 10m away.	DBCA consider that the boardwalk will provide an additional, alternative experience for community access and enjoyment.

Issue	DBCA response
The boardwalk may introduce and encourage anti-social behaviour such as break-ins, theft and rubbish since it is not visible from the shore.	The concern is noted. The marina will be responsible for managing the boardwalk area, including implementing appropriate measures to discourage anti-social behaviour if required.
People will be tempted to dive into the water from the boardwalk amongst rocks and reversing boats. The boardwalk may become a safety hazard for unaccompanied children.	The concern is noted. The marina will be responsible for managing the boardwalk area, including implementing appropriate measures to discourage anti-social behaviour if required.
The boardwalk will require lighting and security.	A lighting plan will be required as a condition of approval to demonstrate that the impact on amenity and the natural environment will be minimised. Regarding security, the marina has advised that a manager will be onsite during daytime hours and gates will prohibit access to jetties after sunset.
The boardwalk serves no public purpose and restricts access.	The boardwalk is considered to provide some community access benefits. It is not expected to restrict access but instead will be accessible 24/7.
Concern that the addition of the boardwalk will result in the closure of the foreshore pathway.	There is no proposal to close the foreshore pathway. The boardwalk is expected to provide an additional, alternative public access arrangement.
Boardwalk can be supported if it remains accessible 24/7 and is maintained by the proponent.	The intention is for the boardwalk to remain accessible to the public 24/7 and will be constructed and maintained by the marina.
Planning	
Following the closure of the industrial uses at the location, the foreshore should have been returned to public use.	Noted. The site has been used as a marina for 20 - 30 years and is considered an established use. Safe on-water areas for storing boats are important to support recreational boating and water sports.
Parking	
The new lease arrangements will extinguish residents right to a boat pen which will lead to a lack of available car bays for the marina. The number of car bays for the marina are already inadequate.	The proposed redevelopment does not seek to alter any existing arrangements between apartment residents who have a boat in the marina. The proposal does not seek to increase the number of boat pens and is therefore not expected to increase the parking requirements at the site. The existing car parking area has enough bays to comply with most recent Australian Standards (AS3962:2020).

Issue	DBCA response
Parking is already an issue in the narrow surrounding streets.	The proposed redevelopment does not involve an increase in the number of boat pens and is therefore not expected to increase the parking requirements at the site. The applicant will be asked to require marina users use the available car bays at the site to avoid pressure on the surrounding area.
The arrangement between apartments and boat pens should be retained to prevent parking problems.	The proposal does not seek to change this arrangement requiring apartments be given access to a boat pen. The existing car parking area has enough bays to comply with current Australian Standards (AS3962:2020).
There is limited parking and congestion around Gilbert Fraser Reserve.	Noted. Parking at Gilbert Fraser Reserve is outside the scope of this approval. The proposal does not involve an increase in the number of boat pens and is not expected to increase the parking pressure in the area. The applicant will be asked to require marina users use the available car bays at the site to avoid pressure on the surrounding area.
The requirement of the marina to provide a boat pen should be continued as it increases the value of the properties.	The potential to add value is noted. However, this is not a relevant planning issue. The current arrangement linking apartments to boat pens is no longer considered necessary for future management of parking. The existing car parking area has enough bays to comply with most recent Australian Standards (AS3962:2020).
Concern that residents have not been advised of the changes to the boat pen arrangements.	The Marina has advised it has contacted the residents to discuss future boat pen arrangements.
Consultation	
There has been no consultation with the community, particularly the residents of the Moorings apartments.	The applicant has advised it has met with residents of the Moorings on a number of occasions. DBCA understands that the plans have been amended through consideration of concerns raised. The draft report on the amended plans will be available for a further period of public comment.
The marina has been designed without engagement with local skippers.	The marina has been designed to comply with current applicable Australian Standards (AS 3962:2020 – *Guidelines for design of marinas*). The updated plans have been endorsed by the Department of Transport, Navigational Safety Team.
The City of Fremantle were unaware of the current application.	The City of Fremantle has provided comments on the initial plans and are currently reviewing the updated proposal. The applicant has met with officers of the City on at least three occasions.

Issue	DBCA response
No consultation was conducted regarding the Heads of Agreement entered into by the new owners.	The Heads of Agreement process does not require public consultation. However, it is conditional upon obtaining development approval which includes public consultation components.
Concern that community objections have been ignored in the past.	Noted.
Safety – boating issues	
The berthing conditions here are difficult in all types of weather.	Noted. The updated marina plans comply with current applicable Australian Standards (AS 3962:2020 – *Guidelines for design of marinas*) which includes wider fairways and turning areas. The updated plans have been endorsed by the Department of Transport, Navigational Safety Team.
This marina is the most difficult for boating manoeuvrability and potential for harm to people, boats and infrastructure. The proposal will increase these risks.	Noted. The updated plans endorsed by the Department of Transport, Navigational Safety Team include wider fairways and turning areas and are expected to improve safe navigation.
Jetty B and Jetty C should maintain the current fairway width to allow for larger vessels which require more space to manoeuvre.	The updated marina plans comply with current applicable Australian Standards (AS 3962:2020 – *Guidelines for design of marinas*) which includes minimum widths for fairways. The updated plans have been endorsed by the Department of Transport, Navigational Safety Team. Most of the narrower fairways have been widened for safer access.
The proposed new fairway widths may comply with Australian Standards but are inadequate for the location and weather/tidal conditions and will result in more collisions. Turning circles are too tight for large vessels under strong currents and winds.	The updated marina plans comply with current applicable Australian Standards (AS 3962:2020 – *Guidelines for design of marinas*) which includes minimum widths for fairways. The updated plans have been endorsed by the Department of Transport, Navigational Safety Team.
The plans show the width of the river passage at the location to be reduced from 130m to 104m which is unacceptable.	The jetties extend further into the river. However, the navigational channel markers are proposed to be moved in collaboration with the Department of Transport to allow for a buffer around the marina and sufficient channel width beyond. The updated plans have been endorsed by the Department of Transport, Navigational Safety Team. DoT advises the remaining river width is sufficient for river traffic. DBCA does not expect the proposal to result in any additional safety risk.
Safety for paddlers and rowers	

Issue	DBCA response
The extension of the jetties to the edge of the navigation channel is not supported as it will force paddlers and rowers into the high-traffic channel used by power boats and ferries. This will increase the risk of accidents and discourage use of the river by paddlers.	The updated proposal includes an agreement with the Department of Transport for the relocation of channel markers. The proposed new locations provide for a 12m buffer for non-motorised craft to safely navigate past the marina without needing to enter the navigational channel. The updated plans have been endorsed by the Department of Transport, Navigational Safety Team.
The area is heavily used by outriggers, stand-up paddle boards and rowers.	Noted.
Safety concerns because the location is the narrowest section of the lower Swan River where tides are strong. All watercraft will be forced into a narrower channel creating a safety risk, particularly for non-motorised vessels.	The updated proposal includes an agreement with the Department of Transport for the relocation of channel markers. The proposed new locations will provide for a 12m buffer for non-motorised craft to safely navigate past the marina without needing to enter the navigational channel.
Wave reflection from the wave attenuators will make the situation worse for passing paddlers.	A wave wake attenuation report has been prepared by coastal engineers to demonstrate that the proposed T-head attenuators will attenuate wave energy. The Department of Transport has supported the findings of the report and advised it has no safety concerns for the proposal.
Wave attenuators should attenuate wave energy, not reflect. Concern that the attenuators will reflect wave energy and make passing by more dangerous.	A wave attenuation report has been prepared by coastal engineers to demonstrate that the proposed T-head attenuators will attenuate wave energy. The Department of Transport has supported the findings of the report and advised it has no safety concerns for the proposal.
Other	
There is a lack of available space on land for facilities to support a marina of this size.	The marina has a lease agreement for ongoing use of an office and carparking area to service the marina facility on land. The proposal does not involve any changes to facilities on land.
The proposal puts profits ahead of community concerns.	Pier 21 is a commercial marina. DBCA recognises that yacht clubs and marinas provide safe on-water pen moorings for vessels and opportunities for recreational boating and water sports. The proposal has been considered having regard to community concerns. DBCA considers that the proposal provides for increased public access and community benefit which provides a balance with the private interests of the Marina.

Issue	DBCA response
The changes are to the advantage of a few and the detriment of many.	Consideration of the proposal has been carried out having regard to community concerns. DBCA considers that the proposal provides for increased public access and community benefit.
There is a lack of access to the jetties from the northern end of the marina. The main crossover used by residents of the Moorings should be retained.	The updated plan for redevelopment retains the crossover which is for access to jetties B and C.
Residents of the Moorings request reinstatement of the right to a boat pen.	The marina will be required to demonstrate how they will ensure residents will have access to a boat pen if they would like one.
Concern about the impact of demolition and construction on nearby residents.	The applicant will be required to prepare a comprehensive construction and environmental management plan to demonstrate how the works will be carried out to minimise disturbance and prevent environmental impacts.
A previously prepared foreshore concept plan aimed to restore beaches and reduce jetties was never realised.	Noted. The updated proposal improves foreshore and beach access at both the northern and southern ends of the marina. Removal of Jetty A will provide opportunities at Portside Park for improved public use of the foreshore and river and a new community use jetty will support public use and enjoyment of the foreshore.
There has been a history of community opposition to proposals in the area such as a previous waterfront restaurant, the Water Policy facility at the end of Harvest Road and extension of riverbed lease at Portside Jetty.	Noted.
Community preference for the original foreshore concept plan which included sandy river beaches between Harvest Road and John Street.	Noted. The updated proposal improves foreshore and beach access at both the northern and southern ends of the marina. Removal of Jetty A will provide opportunities at Portside Park for improved public use of the foreshore and a new community use jetty will support public use and enjoyment of the river.
Department of Transport has a conflict of interest in that it profits from moorings.	The Department of Transport does not profit from moorings. Revenue collected from River reserve leases is reinvested into management of state public assets.
Questions the legality of linking apartments to boat pens.	Noted. Apartment owners will be able to continue to access a boat pen should they wish to.

Issue	DBCA response
Questions the provision of a marina office and parking on land zoned residential.	The parking area was approved along with the Moorings apartments by the Western Australian Planning Commission in 1998. Provisions are in place to ensure the long-term availability of this parking.
Concern that there is existing conflict at Portside Park due to there being no public jetty, leading boats to instead use the swimming jetty to the north.	The applicant proposes to construct a community use jetty at Portside Park near the location of Jetty A. The jetty will allow for boats to pick up or set down guests, providing a much needed asset and enhancing public use and enjoyment of the river.
Concern that the proposal benefits non-local boat owners and not Fremantle ratepayers.	Noted. The marina is open to any interested party looking to berth a boat regardless of where they reside.
Suggest removing jetties B and C to allow for the foreshore to be returned to public recreation.	DBCA supports the public use and enjoyment of the foreshore. However, the Marina is an established use of this area having initiated a River reserve lease in 2006. The proposal seeks to provide a similar number of boat pens to allow for recreation and boating, while also returning 70 lineal metres of foreshore at the southern and northern ends of the Marina to public use. This achieves a balanced outcome.
SUPPORT	
Other	
Security gates on jetties is supported.	Noted. A manager will be onsite during daytime hours and gates will prohibit access after sunset.
Support for the investment in the new marina infrastructure, as it has been left in a state of disrepair by previous owners.	Noted.
Support for proposal.	Noted.
Recognise the need for and support upgrade.	Noted.