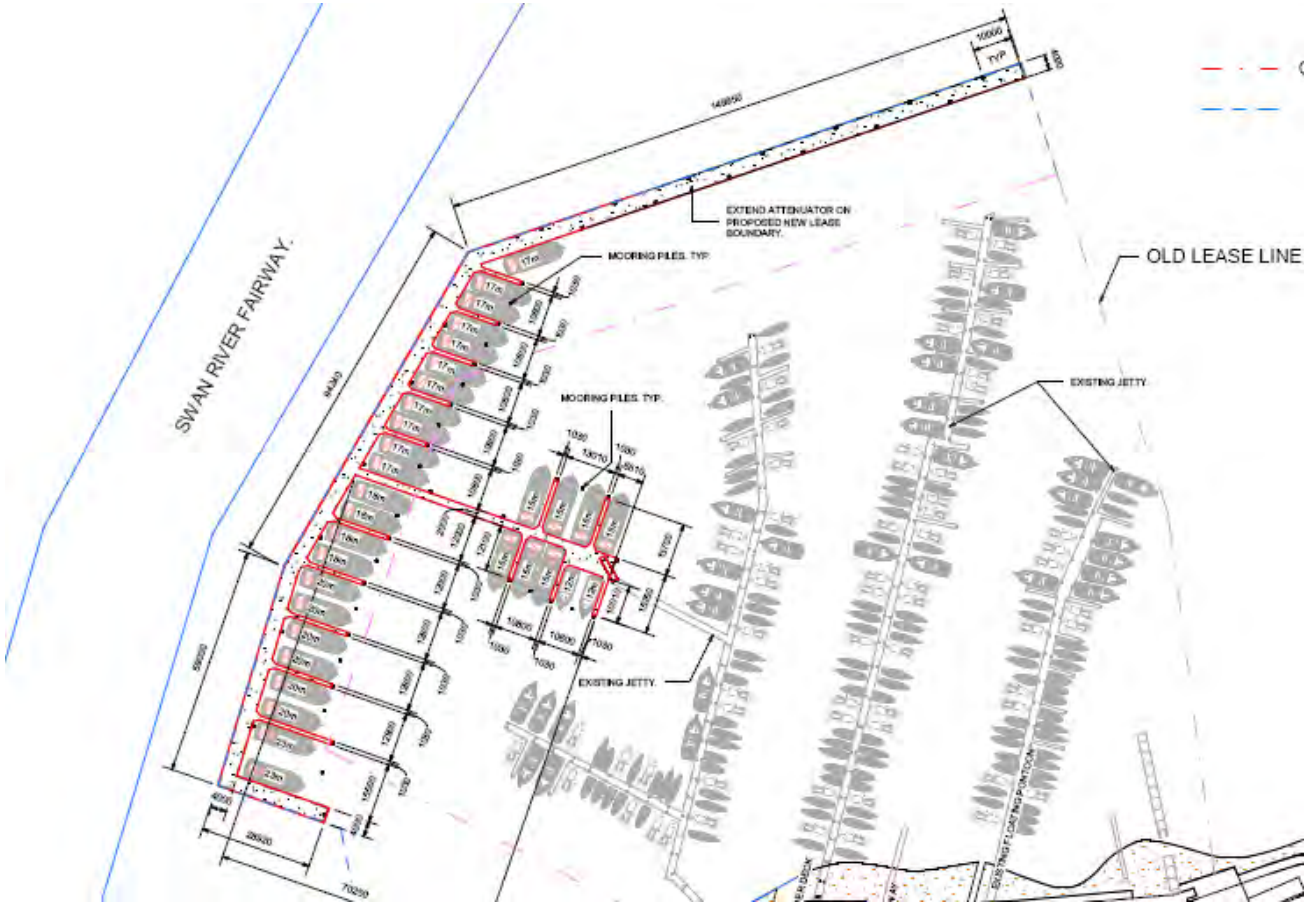
Project 2	JETTY 5
Stage	1
Commencement	On Part 5 application approvals
Project Duration	18 months
Project Cost Estimate	$3.4m



Project Description

The proposed replacement structure for Jetty 5 will be a floating concrete attenuator of approximately 300 meters in length, with a deck width of 4m. The structure will be secured by steel piles that will be protected with HDPE sleeves. The new jetty will also serve as a mooring system, providing vessel berths of up to 23m in length.

The current Jetty 5 berths, constructed in the early part of the century, suffer extensively from several natural and man-made conditions, including current, wind waves, sediment build-up inside the jetty system, and significant vessel wake waves generated by speeding boats and large river/Rottnest ferries that pass close to the jetty system.

To create a safer and user-friendly marina environment, and to comply with the current Australian Standards for marina design, the application includes a request to extend the riverbed lease boundary to the west and north, resulting in approximately 6,200 sqm of additional water lease. This extension will not increase the number of berths in the marina but will allow for berthing of some larger vessels.

The installation of the proposed floating attenuator system will significantly reduce the impact of the above issues by significantly eliminating wave action from entering the marina, providing a safer and more comfortable amenity for users. The attenuation effect is also expected to reduce sediment flow into the marina area, which will reduce the frequency of dredging the seabed, providing an additional environmental benefit for the site.

Furthermore, by extending the lease boundary to the north and west, passing vessels will be forced to use the navigation channel, creating a safer environment for users of the river system in this location, particularly for canoe, SUP, and other self-propelled vessel users.

Access to the new Jetty 5 will be via an extension to the west of Jetty 6, which will also be a floating pontoon system retained by HDPE sleeved steel piles. The extension will realize an additional four 15m berths on the northern side of the pontoon system and five 12m berths on the southern side. Transition from the existing Jetty 6 to the new floating extension will be via a marine-grade aluminum gangway.

In conclusion, the proposed replacement structure for Jetty 5 will be a floating attenuator that will serve as a mooring system and significantly reduce the impact of wave action on the marina environment. The extension of the riverbed lease boundary to the west and north will create a safer and user-friendly marina environment without increasing the number of berths.

JETTY 5

Proposed Design & Engineering

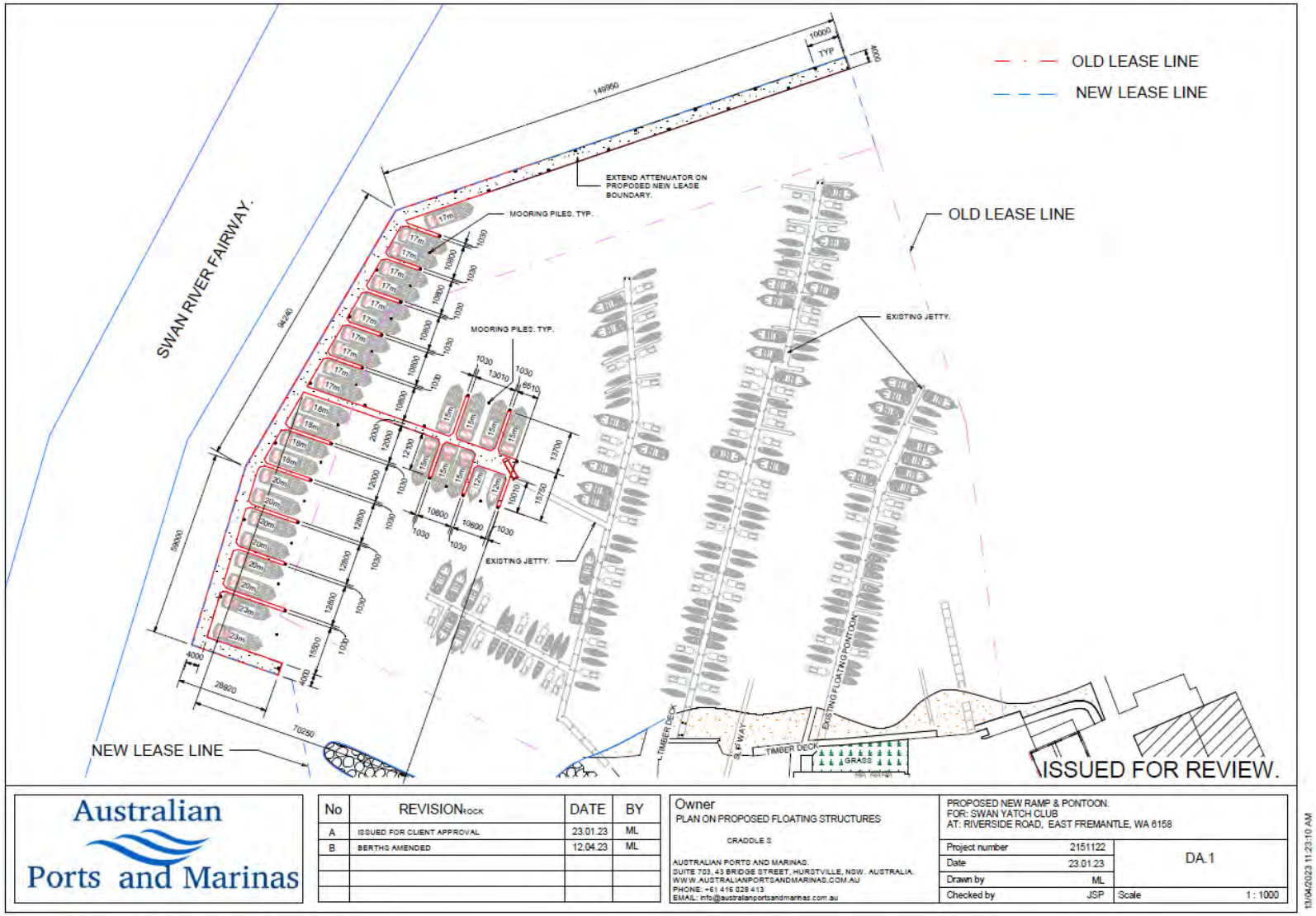
The design and engineering of the proposed attenuation modules will be performed by qualified maritime and coastal engineers from Australian Ports & Marinas.

The project will adhere to a set of design criteria with the goal of achieving a minimum lifespan of 50 years for piles and 30 years for the floating structures. The design will comply with all relevant Australian Standards, such as AS3962-2020-Marina Design, and meet the required design loads, minimum marina dimensions, and service requirements.

The design brief will focus on ensuring that the attenuation system controls wind-generated waves, boat wash and wake-generated waves, and sediment movement from entering the marina.

The club will assess various attenuation system design alternatives, including the conventional full concrete system, partial concrete system, and an aluminium-framed design, after conducting a thorough review of existing attenuation systems in Australia.

The proposed layout drawings are based on the approval of the requested extension of the jetty envelope.



JETTY 5

1 FLOATING STRUCTURES

ISSUED FOR REVIEW.

Australian Ports and Marinas

No	REVISION	DATE	BY
A	ISSUED FOR CLIENT APPROVAL	23.01.23	ML
B	BERTHS AMENDED	12.04.23	ML

Owner
PERSPECTIVE ON FLOATING STRUCTURES

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PROPOSED NEW RAMP & PONTOON.
FOR: SWAN YATCH CLUB
AT: RIVERSIDE ROAD, EAST FREMANTLE, WA 6158

Project number	2151122	DA.2
Date	23.01.23	
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JETTY 5

Construction Methodologies

The construction plan for the proposed Jetty 5 project involves obtaining approved construction methodologies from individual contractors for their respective works programs, such as demolition, piling, pontoon construction, supply and installation, services installation, and other processes. Each contractor must provide the required Construction & Environmental Management Plans for the works and location for the approval of the SYC, ToEF and DBCA.

For the demolition of existing structures, a methodical approach will be taken. Firstly, all existing services such as power, water, and other jetty accessory items will be isolated, disconnected and removed. Then, the finger jetties and walkway jetties will be dismantled and loaded onto a barge before being taken to an approved disposal site. Piles will be removed using a vibrating hammer method to extract them from the seabed. If it's not possible to extract the pile, it will be cut 300mm below the seabed and removed. Silt curtain protection will be installed to minimize sediment movement from exiting the site. Seabed clean-up of any materials dislodged during the dismantling process will also be carried out.

Piles will be installed using a vibrating and or drop hammer method and driven to design embedment before being cut off to final RL height. HDPE pile sleeves will then be installed over the driven steel pile and driven into the seabed at a minimum embedment of 1.5m. The sleeves will then be fully sealed to provide the 50-year design life and prevent oxygen ingress and oxidization. White bird deterrent conical caps will be installed at the top of the HDPE sleeve.

The attenuation, walkway, and pontoon modules will be fabricated off-site using the preferred contractor's proprietary system manufacturing methodologies and shipped to the site. Attenuation, walkway, and finger pontoon installation will then be carried out on-site. The attenuation modules will be launched at the boat ramp facility and towed to the final location for installation/connection to the piles. All units will be connected to form the walkway. Similarly, Jetty 6 walkway pontoons will follow the same procedure and be secured to the piles. Finger pontoons will be connected to the attenuator and walkway pontoons and piles.

An aluminum truss-style gangway that complies with DDA requirements will be installed at the end of the existing Jetty 6 landing, connecting the walkway to the attenuator pontoon system. Services such as potable water and power, firefighting equipment, safety ladders, and life buoys will be installed on the new pontoon systems. Overall, the methodology statement is designed to ensure that the project is executed efficiently, safely, and in compliance with all required standards and regulations.

JETTY 5

Project Materials-Piles

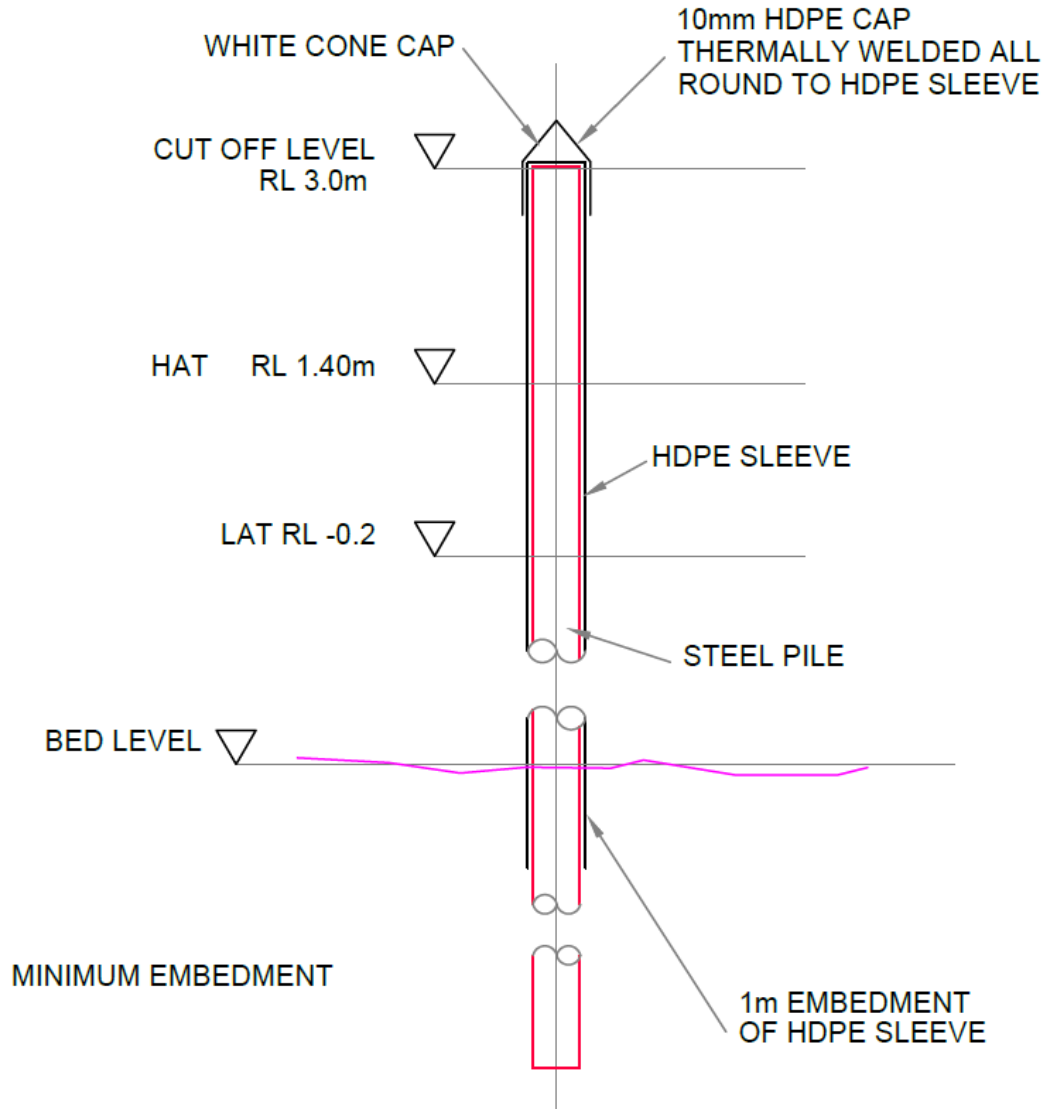
The piles are an essential component of the proposed project and play a critical role in ensuring the stability and longevity of the new jetty system. The piles are made of C350 grade steel, a high-strength, corrosion-resistant material that is ideal for marine applications.

The piles will be driven into the seabed using a vibro-head method, which is a non-percussive piling technique that reduces noise and vibration during installation. The vibro-head method involves vibrating the pile into the ground, which compacts the soil around the pile and provides a stable foundation. The piles will be driven to the designed length and embedment, ensuring that they provide the required support and stability for the new jetty system.

To protect the piles from corrosion and increase their design life, HDPE liners will be installed over the steel piles. The liners will be installed using a vibro-head method to ensure that they are securely fitted to the piles. The HDPE liners will provide a barrier between the steel piles and the surrounding seawater, preventing corrosion and ensuring that the piles have a minimum design life of 50 years.

The piles will be driven a minimum design specified into the seabed to provide adequate support and stability. The depth of embedment will depend on the site-specific conditions, including soil type, water depth, and wave conditions. The piles will be cut off to the final RL height after installation and will be fitted with HDPE liner and white bird deterrent conical caps to prevent birds from nesting on the piles.

In summary, the piles for the proposed project are made of C350 grade steel, driven into the seabed using a vibro-head method, sleeved and sealed with HDPE liners, and driven a minimum of 1.0 meters into the seabed. The piles will provide the necessary support and stability for the new jetty system, ensuring that it has a long design life and is able to withstand the harsh marine environment.



JETTY 5

Project Materials - Pontoons

The potential pontoon systems being considered for the project include a full concrete option, partial concrete option, and an aluminum/concrete option.

The full concrete option will feature 50mpa marine grade concrete with Fiberglass Reinforced Polymer (FRP) reinforcement deck. The floatation system will include 13.5kg/m3 SL grade Expanded Polystyrene (EPS) foam encased in concrete and FRP through-rods. Stress Grade F17 timber walers will be used for durability class 1 or 2.

The partial concrete option will also feature 50mpa marine grade concrete with FRP reinforcement deck and SL grade EPS foam. The floatation system will have impact-resistant High-Density Polyethylene (HDPE) encasement. FRP through-rods and Stress Grade F17 timber walers will also be used.

The aluminum option will have a marine-grade aluminum frame with an FRP solid-top deck and SL grade EPS foam with impact-resistant HDPE encased floatation modules. The attenuation side panels will be made of 50mpa marine grade concrete.

Each pontoon system will be designed and fabricated off-site using the preferred contractor's proprietary system manufacturing methodologies and shipped to the project site for installation. The system installed will provide a stable and secure platform for boats to dock and allow for safe and efficient movement throughout the marina.

Upon approval of the Part 5 Application, and in particular the riverbed lease extension, SYC will approach market via a Request for Tender [RFT] process where makers will provide final designs and costings for consideration and subsequent appointment.

JETTY 5

Project Materials

Services & Lighting:

To ensure the functionality and convenience of the marina berths, all new floating infrastructure will be equipped with service pedestals designed to meet the requirements of AS3962-2020 and other relevant Australian Standards. The service pedestals will be constructed using marine-grade aluminium, a durable and corrosion-resistant material suitable for marine environments. Each pedestal will serve two berths and provide the following services:

Metered Power and Water: The service pedestals will supply metered power and water connections to the berths. This will enable boat owners to conveniently access essential utilities for their vessels while docked at the marina.

Walkway Lighting: The walkway lighting design will be carefully planned to ensure compatibility with SYC's existing jetty lighting system, creating a cohesive and consistent visual environment. It will also comply with relevant Australian standards, particularly AS1158.3.1:2005 and AS4282-1997.

The lighting fixtures installed on the service pedestals will be designed to diffuse the light onto the deck area of the jetty system, ensuring safe passage for pedestrians during non-daylight hours. The lighting arrangement will be strategically positioned to avoid any interference with navigation processes for passing vessels. Additionally, considering the distance between the jetty and the western and northern shorelines, the lighting will not pose any issues to nearby residences, ensuring minimal impact on the surrounding area.

This approach to walkway lighting ensures that safety and visibility are prioritised for pedestrians while maintaining the navigational integrity of the area and respecting the needs of nearby residents. By adhering to the applicable Australian standards and considering the specific requirements of the site, the lighting design will provide a well-lit and secure environment for individuals using the walkway during nighttime hours.

JETTY 5

Project Materials

Fire Fighting Services

Safety is of paramount importance, and the design of the attenuator and new pontoon system will incorporate fire fighting equipment in compliance with Australian Standards, including the local DFES (Department of Fire and Emergency Services) marina requirements. The fire fighting services provided will include the following:

Fire Hose Reels: The attenuator and pontoon system will be equipped with strategically placed fire hose reels. These reels will provide a readily accessible water supply in the event of a fire emergency, enabling prompt response and effective fire suppression.

Fire Extinguishers: In addition to fire hose reels, fire extinguishers will be installed at appropriate locations throughout the attenuator and pontoon system. These extinguishers will provide additional fire protection measures, allowing for quick intervention and containment of small fires.

The design and implementation of the fire fighting services will adhere to relevant Australian Standards, ensuring that the marina infrastructure meets the necessary safety requirements and provides a secure environment for all marina users.

By incorporating these services and fire fighting measures, the Swan Yacht Club is prioritising the safety and convenience of its members and visitors, ensuring a well-equipped and secure marina facility.

DRAWINGS/SPECIFICATIONS/PROGRAMS

This section of the Development Application submission documentation serves to present project-specific details and "typical" design information, giving an overview of the projects planned for Stage 1 of SYC's master plan. It also includes indicative project timelines, providing a sense of the expected progression for each project.

It is important to note that due to the anticipated lead time for project commencement, which could be up to 5 years after obtaining approvals, the detailed designs for these projects will not be produced until closer to the actual start dates. Therefore, the information provided in this documentation represents a close approximation of the infrastructure that will ultimately be constructed at our site.

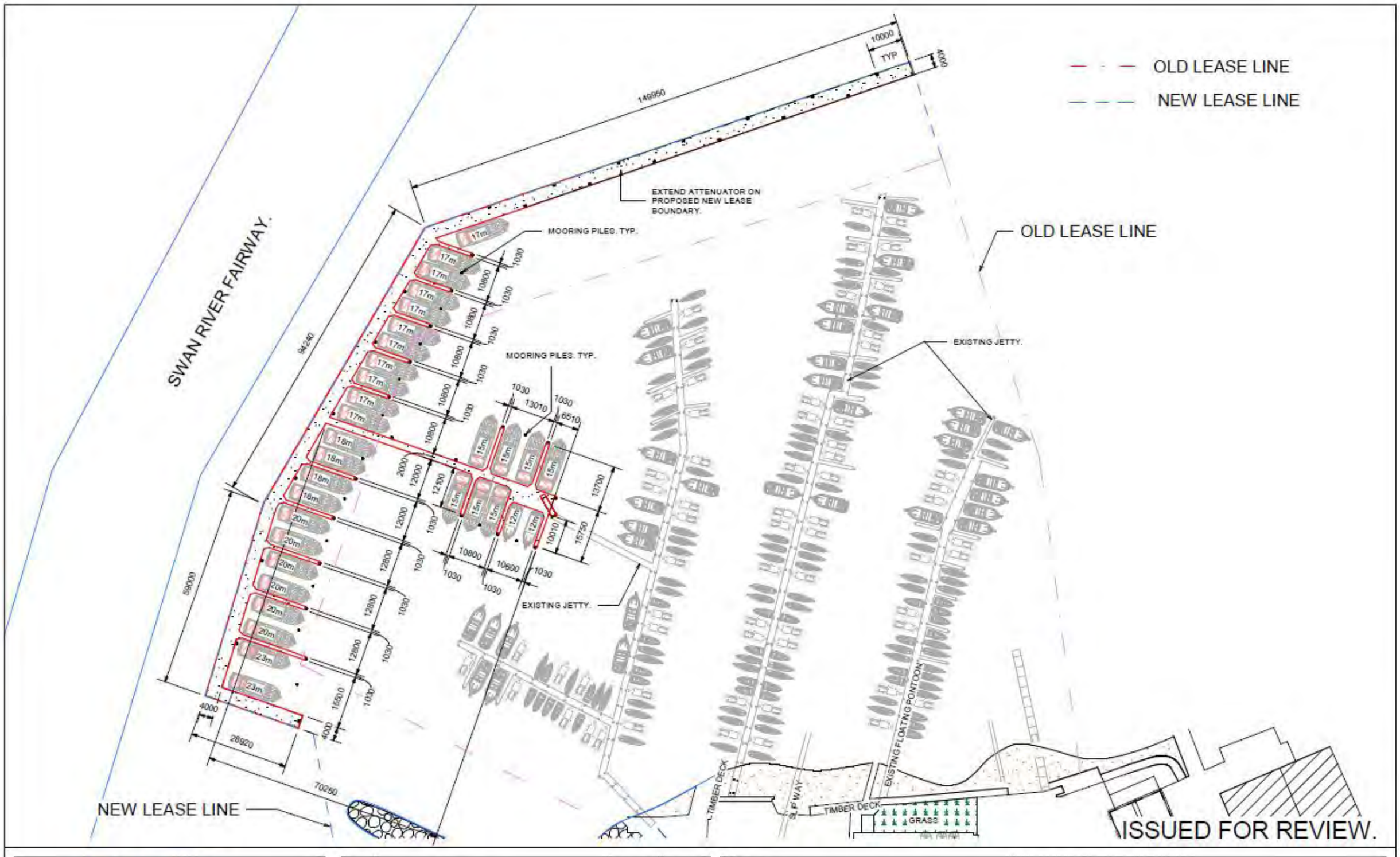
While the designs are subject to further refinement and fine-tuning during the detailed design phase, the information presented here offers a reliable representation of the intended scope, scale, and functionality of the proposed projects. It allows stakeholders, authorities, and the community to gain a clear understanding of the planned developments and their potential positive impact on the site.

SYC remains committed to ensuring that the final infrastructure aligns closely with the information provided in this submission, taking into account any necessary adjustments or enhancements that may arise during the detailed design and construction phases.

As the projects progress and the actual start dates approach, more comprehensive and detailed design documentation will be prepared and submitted for approval. This will ensure that the final infrastructure meets the highest standards of quality, safety, and compliance with all applicable regulations and guidelines.

By providing this project-specific and indicative design information, along with projected timelines, SYC aims to foster transparency and informed decision-making among all stakeholders involved.

JETTY 5 ATTENUATOR & JETTY INFORMATION



ISSUED FOR REVIEW.

Australian Ports and Marinas

No	REVISION	DATE	BY
A	ISSUED FOR CLIENT APPROVAL	23.01.23	ML
B	BERTH3 AMENDED	12.04.23	ML

Owner
PLAN ON PROPOSED FLOATING STRUCTURES

CRADDLE 8

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PROPOSED NEW RAMP & PONTOON.
FOR: SWAN YATCH CLUB
AT: RIVERSIDE ROAD, EAST FREMANTLE, WA 6158

Project number	2151122	DA.1	
Date	23.01.23		
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Checked by	JSP	Scale	1 : 1000

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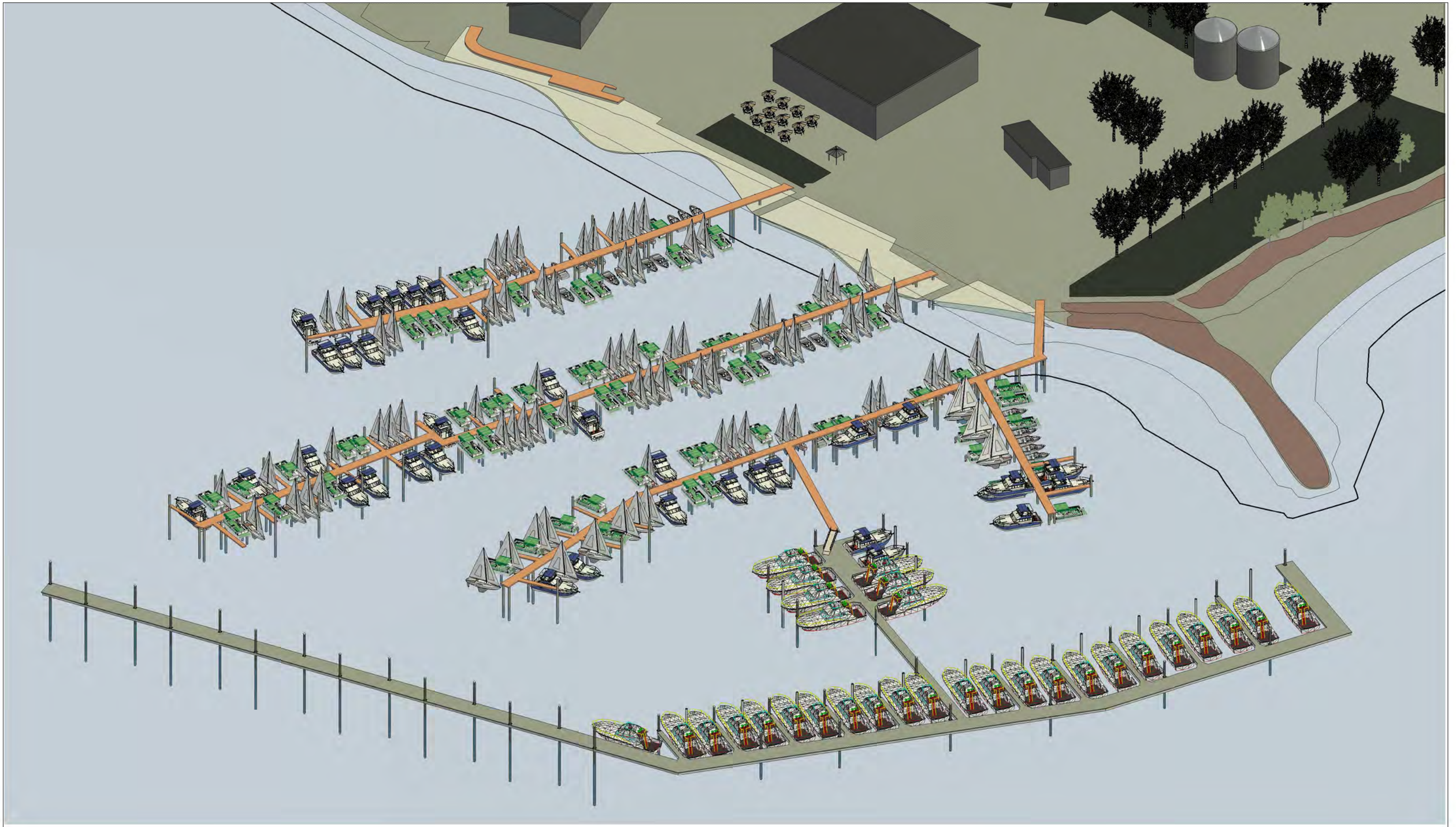

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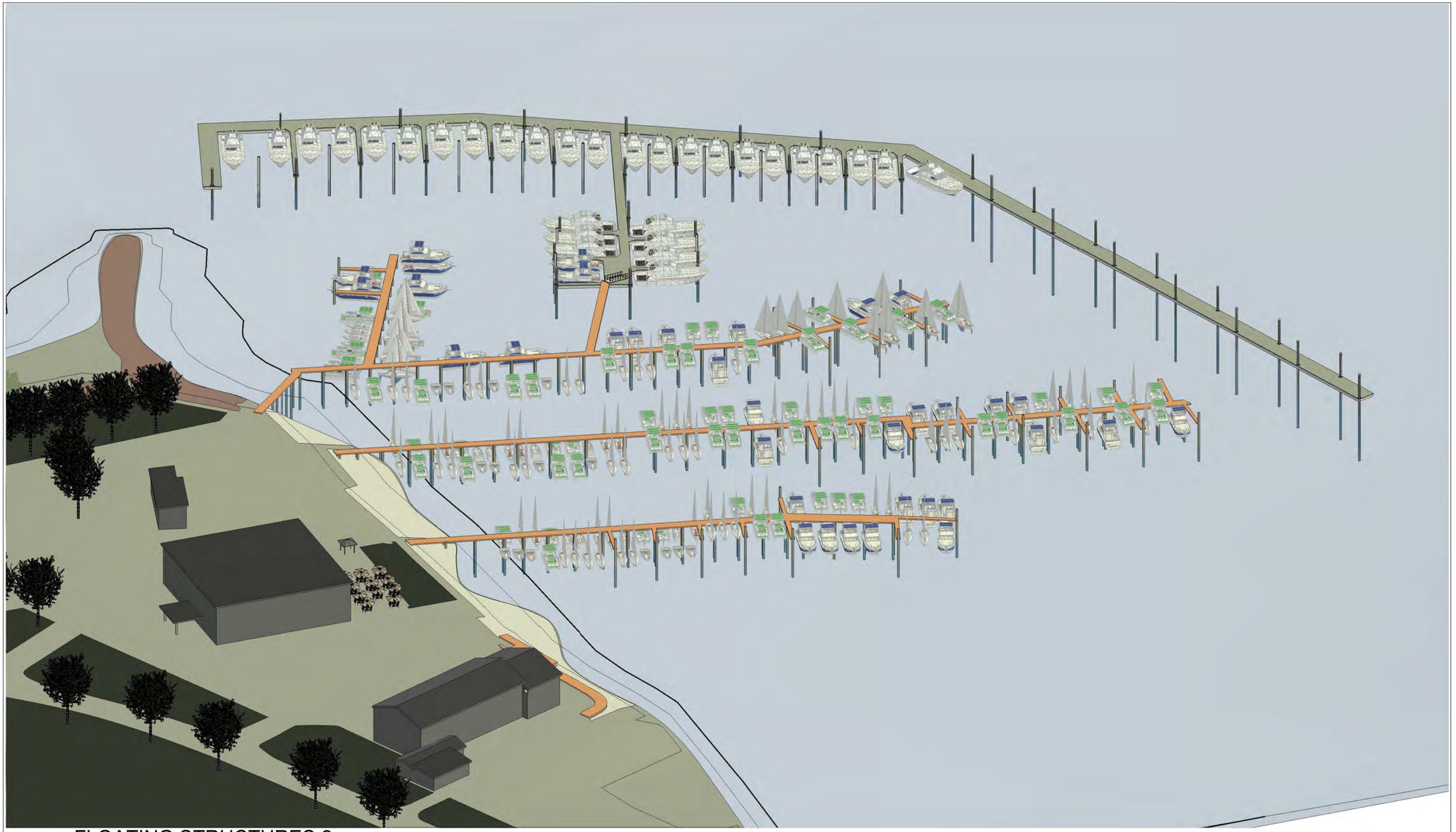

1 FLOATING STRUCTURES 2

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PERSPECTIVE ON FLOATING STRUCTURES 2

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PROPOSED NEW RAMP & PONTOON.
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AT: RIVERSIDE ROAD, EAST FREMANTLE, WA 6158

Project number	2151122	DA.3
Date	23.01.23	
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Swan Yacht Club-Jetty 5 Attenuator

Task Name	2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SWAN YACHT CLUB-ATTENUATOR PRELIMINARY PROGRAM								
Tender Documents								
Project Specifications								
Return Schedules								
Contract Documents								
Tender Request [RFT]								
Tenders Issued								
Tenders Received & Reviewed								
Tender Report								
Contract Award								
Engineering								
Contractors Design Inc. Changes								
3rd Party Verification								
Electrical								
Hydraulic								
RFQ's & Procurement								
Attenuator								
Pontoons								
Service Pedestals								
Fire Equipment								
Piles								
Sleeves								
Piling Services								
Electrical Install Services								
Hydraulic Install Services								
Fire Install Services								
Mobilisation								
Construction Site Compound Set Up								
Attenuator Construction								
Fabrication								
Piling								
Attenuator piling								
Installation								
Attenuator Installation								
Pontoon Construction								
Connecting Walkway								
Attenuator Fingers								
Marina Fingers								
Demolition								
Jetty 5 Western Piles and Fingers								
Installation								
Attenuator Fingers								
Demolition								
Remaining Western Arm of Jetty 5								
Installation								
Connection Walkways								
Marina Fingers								
Services Install								
Commissioning								