

Marco Silva
Development Director
Essex Develop
Suite 14, 26-32 Pirrama Road
Upper Deck (Jones Bay Wharf)
Pyrmont NSW 2009

HASKONING AUSTRALIA PTY LTD.

Level 15
99 Mount Street
North Sydney NSW 2060
Australia

+61 2 8854 5000 **T**
project.admin.australia@rhdhv.com **E**
royalhaskoningdhv.com **W**

Date:	31 May 2024	Contact name:	Matt Potter
Your reference:	tbc	Telephone:	0406 931 783
Our reference:	PA3775-RHD-XX-XX-CO-X-0003	Email:	matt.potter@rhdhv.com
Classification:	Project related		
Enclosures			

RE: SIRSI MARINA, NEWPORT - NAVIGATION IMPACT ASSESSMENT ADVICE

Dear Marco,

Further to recent correspondence and our site inspection on 2 March 2023, we provide the following navigation impact assessment advice in relation to the proposed berth upgrades to the Sirsi Marina at 122 Crescent Road, Newport. It is understood that Essex Develop require advice on navigation impact matters to support their Development Application (DA) for the proposed marina upgrade.

Initial consultation was undertaken with Crown Lands and TfNSW-Maritime to obtain feedback on the original marina layout provided in **Attachment A**. Following discussions with TfNSW-Maritime on 11th April 2024, amendments were made to the original marina layout in response to feedback including the reduction of the proposed maximum vessel size and minimisation of the marina footprint. The proposed marina layout that is the subject of the assessment presented herein is provided in **Attachment B**.

1 Existing marina

The existing marina (refer **Figure 1-1**) comprises three main arms consisting of gangway access to floating pontoons. The marina caters for a range of vessel sizes from 4m to 22m length and vessel types including small dinghies, runabouts, motor yachts and sailing yachts. Based on review of aerial photographs, the marina has berthed up to a total of 35-40 individual vessels (excluding dinghy storage available on top of nearshore pontoons). The marina also has a boat launching ramp and a dock for lifting vessels onto the hardstand area for repair and maintenance and a sheltered workshop building.

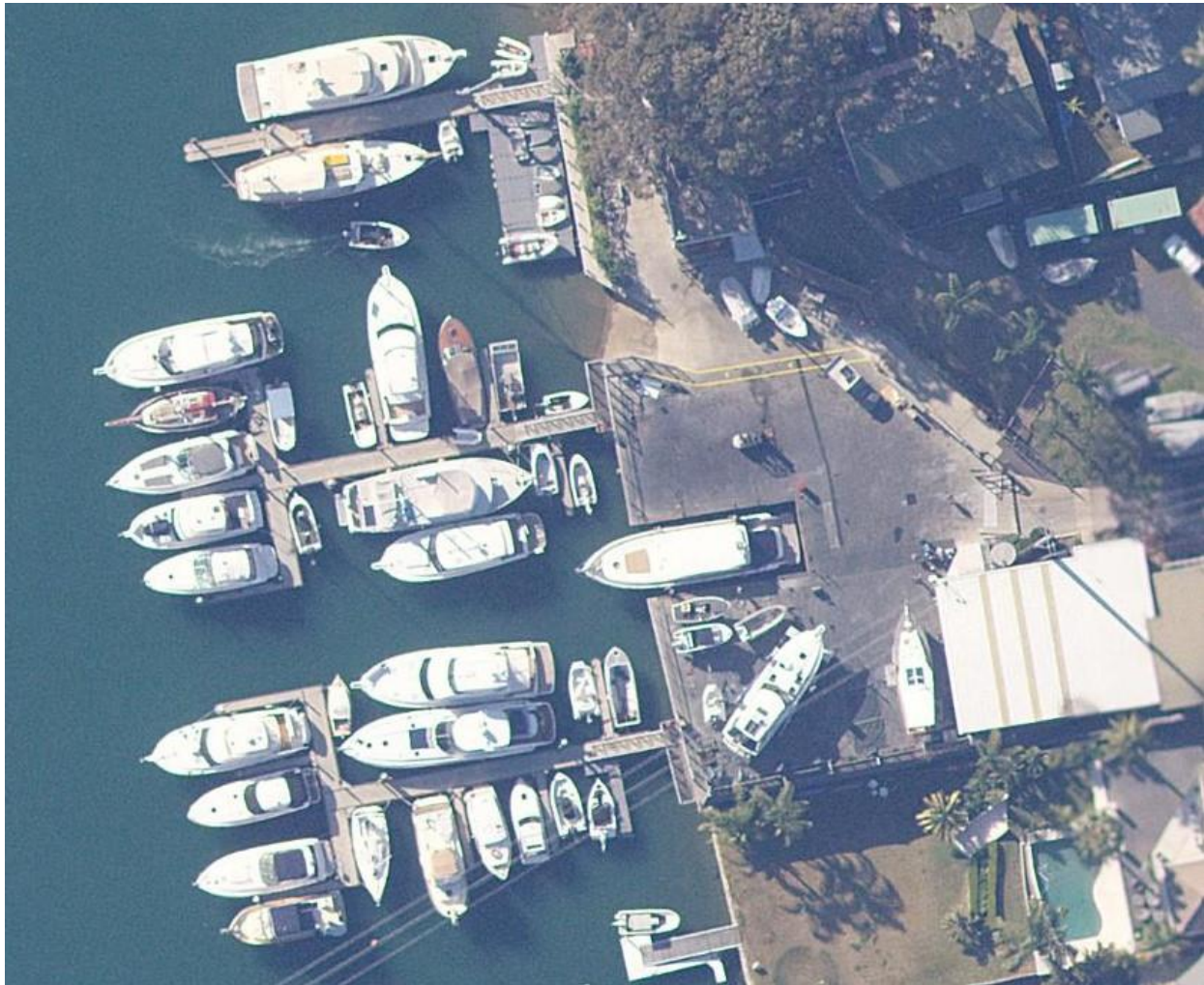


Figure 1-1: Existing Sirsi Marina site (Source: NSW Government SIX Maps)

2 Proposed marina upgrade

The proposed marina upgrade is understood to be associated with the proposed redevelopment of the onshore area with the proposed marina berths to be offered to occupants of luxury residential apartments.

An overlay of the proposed marina layout¹ on an aerial photograph (dated 21 August 2022) is provided in **Attachment C**. A total of 9 marina berths are proposed and are orientated shore-normal in berthing pens accessed by gangways and floating pontoon walkways extending along the foreshore from the southern property boundary to the roadhead at the end of The Avenue. Vessels are proposed to be berthed in a 'bow in' (i.e. bow facing the shoreline) arrangement within each berth.

The proposed design vessels for the upgraded marina range from 15m to 22m in length, and comprise motor yachts. It is understood that berthing of deep keel sailing yachts is not proposed. It is considered that berthed vessels would likely be sourced from motor yacht manufacturers such as Sunseeker, Princess, Fairline and Riviera. RHDHV has reviewed the available vessel specifications from

¹ Prepared by Boxall Surveyors and supplied to RHDHV in CAD format.

manufacturer websites. This information is summarised for each design vessel size along with guidance within AS3962:2020 *Marina Design* in **Table 2-1**, **Table 2-2**, **Table 2-3**, and **Table 2-4**.

Table 2-1: 15m Vessel Specifications

Brand	Model	Length (m)	Beam (m)	Draught (m)	Displacement (kg)	Comment
Princess	F50	15.14	4.3	1.39	22,893	
Princess	V50	15.35	4.08	1.09	19,530	
Fairline	Targa 50 GT	15.44	4.32	1.18	13,500	(dry weight)
Fairline	Squadron 50	15.44	4.32	1.17	13,500	(dry weight)
Riviera	465 SUV	14.3	4.76	1.33	21,925	(dry weight)
Riviera	50 Sports Motor Yacht	15.43	4.96	1.45	25,500	(dry weight)
AS3962:2020	15m monohull vessel	15	4.9	1.2	-	average draught
AS3962:2020	15m monohull vessel	15	4.9	1.5	-	95 th percentile draught

Table 2-2: 18m Vessel Specifications

Brand	Model	Length (m)	Beam (m)	Draught (m)	Displacement (kg)	Comment
Sunseeker	Predator 60 Evo	18.24	4.70	1.30	27,900	
Sunseeker	Manhattan 55	17.21	4.87	1.37	27,000	
Princess	F55	17.68	4.87	1.41	30,924	
Princess	V55	17.81	4.66	1.40	31,194	(half load)
Fairline	Squadron 58	17.98	4.99	1.52	27,000	(dry weight)
Riviera	57 Enclosed Flybridge	17.20	5.13	1.65	29,985	(dry weight)
Riviera	6000 Sport Yacht	17.60	5.38	1.499	26,964	(dry weight)
Riviera	575 SUV	17.20	5.13	1.57	27,100	(dry weight)
AS3962:2020	18m monohull vessel	18.00	5.50	1.32	-	average draught
AS3962:2020	18m monohull vessel	18.00	5.50	1.68	-	95 th percentile draught

Table 2-3: 20m Vessel Specifications

Brand	Model	Length (m)	Beam (m)	Draught (m)	Displacement (kg)	Comment
Sunseeker	Predator 65	20.50	5.10	1.60	37,810	
Sunseeker	Manhattan 68	21.21	5.26	1.60	37,400	
Princess	F65	20.30	5.10	1.63	40,177	(lightship)
Princess	S66	20.32	5.08	1.47	30,500	(lightship)
Princess	S62	19.17	4.87	1.46	27,200	(lightship)
Princess	V65	19.34	5.08	1.47	36,073	(half load)
Princess	V60	19.17	4.87	1.50	29,182	(half load)
Fairline	65 GT	19.96	5.23	1.47	34,000	(dry weight)
Fairline	Phantom 65	19.96	5.23	1.58	38,300	(dry weight)
Fairline	Squadron 68	21.12	5.23	1.57	43,000	(dry weight)
Riviera	64 Sports Motor Yacht	19.41	5.80	1.68	42,980	(dry weight)
Riviera	645 SUV	19.41	5.80	1.62	39,970	(dry weight)
Riviera	Belize 66 Daybridge	19.42	5.40	1.64	38,515	(dry weight)
Riviera	Belize 66 Sedan	19.42	5.40	1.60	35,015	(dry weight)
AS3962:2020	20m monohull vessel	20.00	5.90	1.40	-	average draught
AS3962:2020	20m monohull vessel	20.00	5.90	1.80	-	95 th percentile draught

Table 2-4: 25m Vessel Specifications

Brand	Model	Length (m)	Beam (m)	Draught (m)	Displacement (kg)	Comment
Sunseeker	Predator 75	23.06	5.38	1.87	46,900	
Sunseeker	76 Yacht	23.60	5.95	1.70	53,700	
Princess	X80	25.17	6.07	1.77	72,813	(half load)
Princess	S78	24.66	5.76	1.77	49,500	(lightship)
Princess	V78	24.48	5.76	1.62	53,605	(half load)
AS3962:2020	25m monohull vessel	25.00	7.00	1.60	-	average draught
AS3962:2020	25m monohull vessel	25.00	7.00	2.00	-	95 th percentile draught

3 Berth geometry

A review of the proposed berth geometry has been undertaken with respect to the guidance provided within AS3962:2020 for the various vessel sizes nominated at each berth. The proposed berths have been allocated to lots within the proposed development as indicated on **Figure 3-1**. The results of the berth geometry assessment are summarised in **Table 3-1** and confirm that the proposed width of the berths is the same or wider than guidance provided in AS3962:2020. Note that the berth for Lot 5 is a double berth, accommodating two vessels.

Table 3-1: Berth geometry assessment

Berth No.	Vessel Size	Proposed Width (m)	AS3962:2020 Width (m)
LOT 5	15m	15.9	10.8*
LOT 3	18m	7.1	6.5
LOT 6	20m	7.1	6.9
LOT 2	22m	8.1	7.8
LOT 7	20m	7.2	6.9
LOT 1	22m	8.1	7.8
LOT 4	22m	8.1	7.8
LOT 8	20m	7.3	6.9

*Double berth

AS3962:2020 provides guidance on the clear width of marina walkways and fingers which, for a marina of this small size (9 berths), comprise a primary and secondary clear walkway width of 1.8m and 1.5m respectively for accessible marina berths and a finger width of 0.9m. A 2m wide primary walkway pontoon is provided along the landward side of the marina, and 1.5m wide secondary walkways are also provided to the northernmost and southernmost berths (i.e. LOT 8 and LOT 5 berths). The internal pontoons would be classed as fingers and comprise 1.5m wide pontoons. As such, with respect to walkway and finger widths, the marina is considered to be compliant with AS3962:2020.

A clear gangway ramp width of 1.2m is recommended in AS3962:2020 for accessible marina berths. A compliant gangway ramp width of 1.5m is provided within the proposed marina layout to provide access to the 2m wide walkway pontoons from the shoreline or fixed jetty structures. A compliant gangway ramp width of 1.4m is proposed for access from the shoreline to the 1.5m wide pontoons at the LOT 8 and LOT 5 berths.

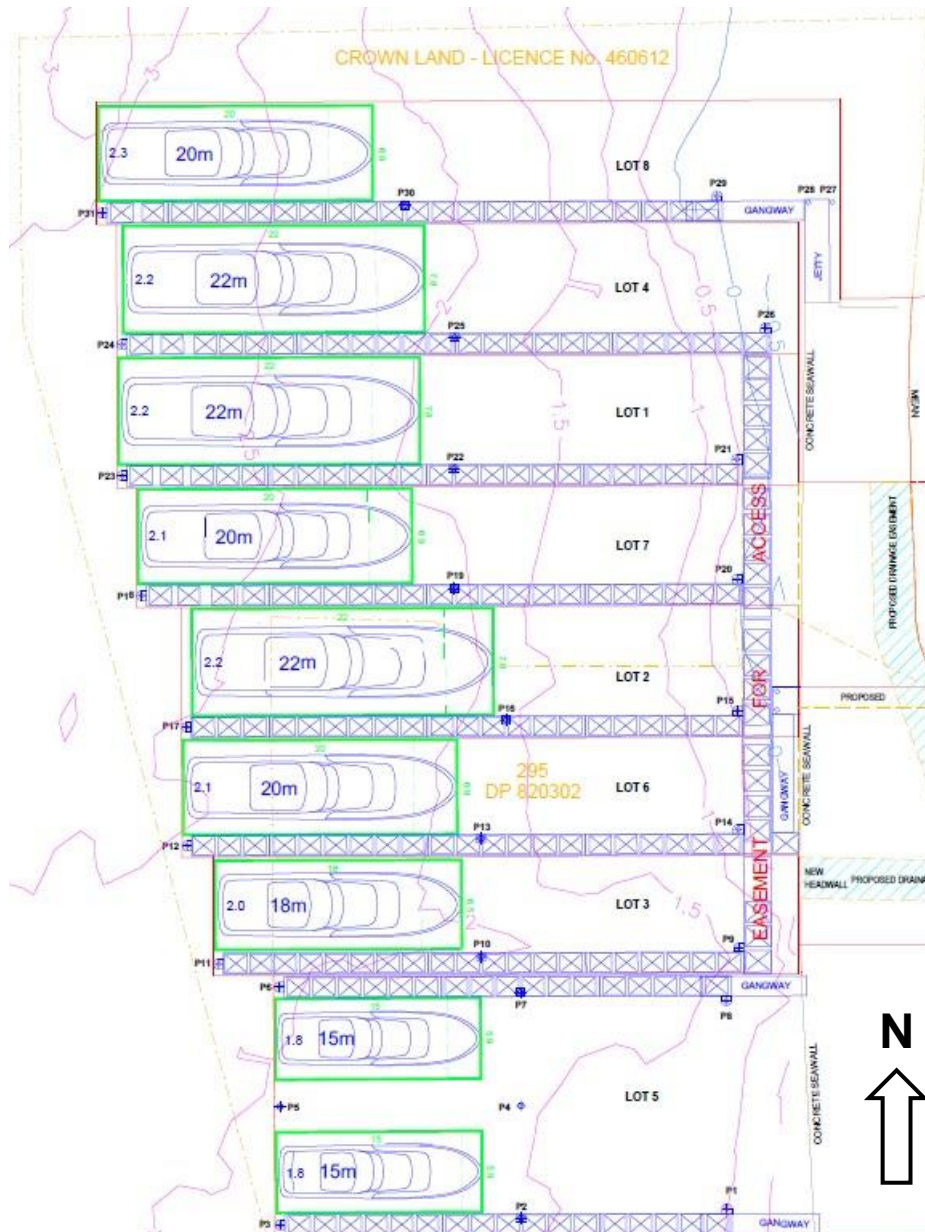


Figure 3-1: Proposed Sirsi Marina berths

4 Available water depths

AS3962:2020 *Marina Design* nominates the following components to be added to the vessel draught for calculation of the required navigable water depth for entrance channels, internal channels/fairways, and berths:

- a minimum of half the significant wave height for vessel movements resulting from wind-generated waves and vessel wake;
- an appropriate allowance where siltation is likely to occur or where it is preferred to reduce the frequency of maintenance dredging;
- a minimum under-keel clearance of 300mm or 10 percent of the vessel draught, whichever is the greater, where the base of the dredged channel consists of soft material; or,

- a minimum under-keel clearance of 500mm, where the base of the dredged channel consists of hard material such as stiff clay, gravel, or rock.

According to the TfNSW-Maritime boating map (9a Pittwater), Sirsi Marina is located within a 4 knot speed zone which would generally eliminate the generation of any significant vessel wake. However, the marina site may still be exposed to a relatively narrow wind fetch to the north-northwest over a distance of 850m to the Royal Prince Alfred Yacht Club marina. In accordance with the wind wave hindcasting procedures in the Coastal Engineering Manual (USACE, 2008) this fetch could generate a wind wave with significant wave height (H_s) = 0.4m and peak wave period (T_p) = 1.6 seconds in a 50 year average recurrence interval (ARI) wind event. It is noted that only the exterior berth LOT 8 (refer **Figure 3-1**) would be exposed to this wave condition, and the other berths would be sheltered by the marina pontoons such that the allowance required for wave action at these other berths would be negligible.

We are not aware of any significant siltation issues in Winji Jimmi Bay, which is a relatively sheltered embayment that is not expected to be subject to dynamic sediment transport or significant infilling.

Previous studies² and anecdotal evidence indicates that soft bottom conditions exist and that an under-keel clearance of 0.3m is therefore appropriate.

A summary of the water depth assessment at each berth is provided in **Table 4-1**, and is based on a hydrographic survey undertaken by Boxall Surveyors on 24 March 2023. Bed levels are provided relative to Chart Datum (CD), which represents the water level of the lowest astronomical tide. Chart Datum is the relevant tidal plane for assessment of required depth in berths, as vessels would be berthed at all states of the tide and should not touch bottom at low tide.

Table 4-1 indicates that the range of available water depths in each berth is generally consistent with guidance in AS3962:2020. It is noted that the proposed 'bow in' berthing arrangement has been considered by determining the minimum bed level at a position seaward of the vessel bow to account for the vessel bow profile. Review of bow profiles for motor yachts of 20-25m length indicates that the bow angle ranges from 40 to 50 degrees and vessel freeboard³ is typically greater than 2m. It was considered that an allowance of 4m was reasonable to account for the horizontal distance between the bow and maximum draught of a nominal 20m marina vessel. This horizontal distance offset (proportioned for other vessel lengths) was applied in the positioning of vessels in the proposed marina berths, to demonstrate the benefits of the 'bow in' berthing arrangement in minimising the marina footprint. It is also noted that the 95th percentile draughts adopted from AS3962:2020 are generally deeper than the draughts collated from the review of motor yacht vessel specifications (refer **Table 2-1**, **Table 2-2**, **Table 2-3**, and **Table 2-4**).

² Mapping completed in "Estuarine habitat mapping and geomorphic characterisation of the lower Hawkesbury river and Pittwater estuaries" (Industry & Investment NSW, 2010) indicated that subtidal rocky reef does not exist at the marina site.

³ Height of exposed deck edge at the bow above the waterline.

Table 4-1: Berth water depth assessment

Berth No.	Vessel Size	Min. Bed Level* (m below CD)	Max. Bed Level (m below CD)	Design Vessel Draught** (m)	Under-keel Clearance (m)	Wave Action Allowance^ (m)	Required Bed Level (m below CD)
LOT 5 (south)	15m	1.8	1.9	1.5	0.3	-	1.8
LOT 5 (north)	15m	1.8	2.0	1.5	0.3	-	1.8
LOT 3	18m	2.0	2.3	1.68	0.3	-	2.0
LOT 6	20m	2.1	2.5	1.8	0.3	-	2.1
LOT 2	22m	2.3	2.5	1.88	0.3	-	2.2
LOT 7	20m	2.1	2.8	1.8	0.3	-	2.1
LOT 1	22m	2.2	2.7	1.88	0.3	-	2.2
LOT 4	22m	2.2	2.7	1.88	0.3	-	2.2
LOT 8	20m	2.3	3.0	1.8	0.3	0.2	2.3

* Determined at the estimated position of maximum vessel draught, located seaward of the bow of vessels that are to be berthed in a 'bow in' arrangement

** Based on AS3962:2020 95th percentile draught

^ Based on 50 year ARI wave condition, applicable to the exterior berth (LOT 8) only

5 Wave Climate

As noted above, the 50 year ARI wave condition for the north north-westerly wind fetch comprises a significant wave height (H_s) = 0.4m and peak wave period (T_p) = 1.6 seconds. The corresponding 1 year ARI wave condition comprises a significant wave height (H_s) = 0.3m and peak wave period (T_p) = 1.5 seconds. These wave conditions represent a 'good' wave climate for a marina, and hence complies with guidance in AS3962:2020.

6 Navigation Access

6.1 Private jetty access

To the north of the proposed marina upgrade, a private jetty exists on the water frontage of 50 The Avenue, Newport. This private berth comprises a fixed jetty providing access from the foreshore to a small pontoon and mooring piles that provide a midship tie-up point on either side of an approximately 12m (40 foot) long sailing yacht. This vessel is berthed at a perpendicular orientation to the private jetty.



Figure 6-1: View of private jetty and sailing yacht berthed at 50 The Avenue, Newport

According to guidance within AS3962:2020, vessels accessing berths via a fairway would require a minimum fairway width of 1.5 times the vessel length ($1.5L$) for manoeuvring into a berth. The distance between the stern of the berthed sailing yacht and the berthing position of the 20m vessel on the northernmost pontoon (LOT 8) of the proposed marina upgrade is approximately 20m (refer **Figure 6-2**). The distance between the stern of the berthed sailing yacht and the face of the northernmost pontoon is approximately 22m (refer **Figure 6-2**). This navigation access width is considered adequate for the 12m sailing yacht ($1.5L=18\text{m}$).

To the south of the proposed marina upgrade, the southernmost pontoon extends within an extension of the joint property boundary with 120 Crescent Road, Newport (refer **Figure 6-3**). As such, the existing level of navigation access to the private berthing structure would be maintained. The navigation access is likely to be improved given that several of the existing marina berths are currently aligned along the property boundary extension and future berthing on the southern side of the proposed marina pontoon would not occur.

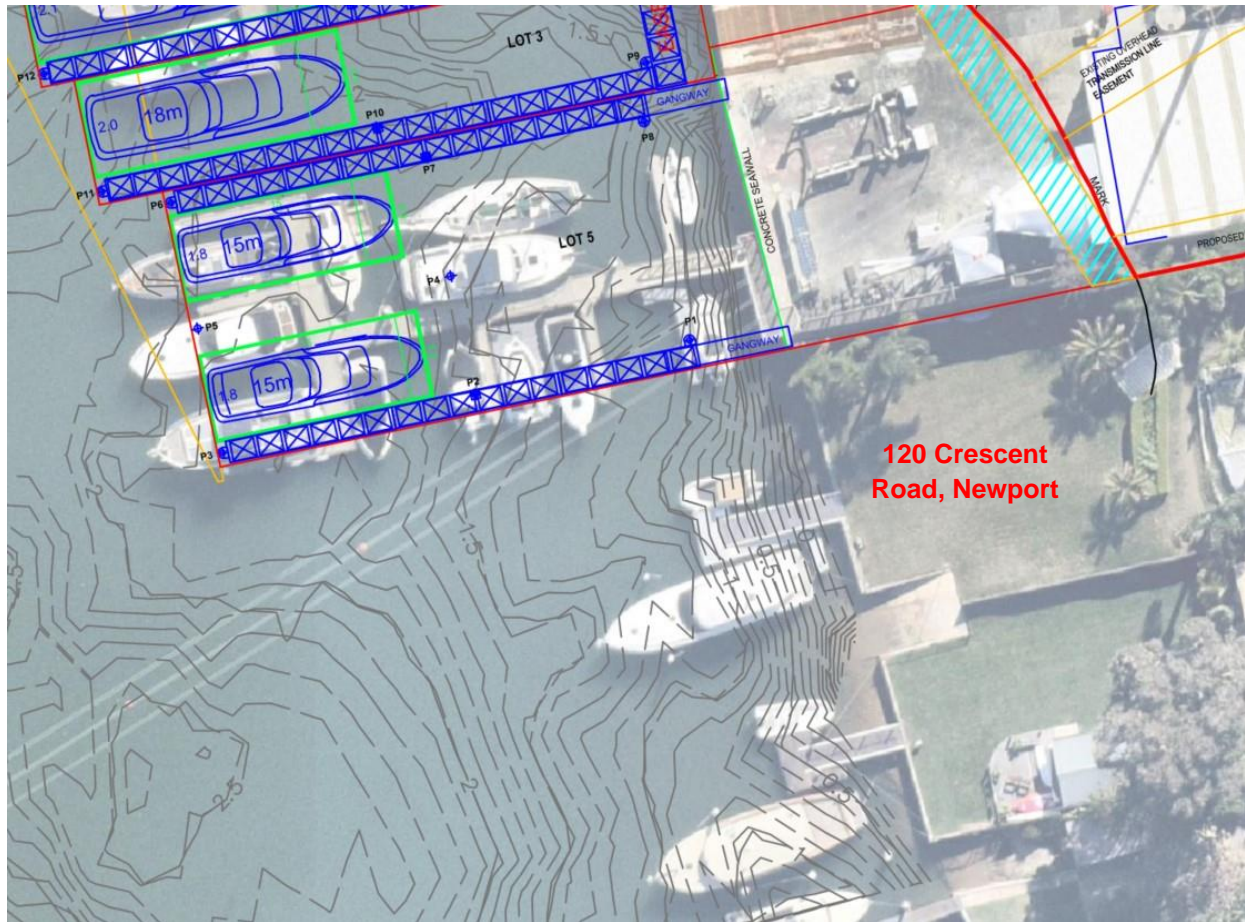


Figure 6-3: Navigation access for existing private berthing structure at 120 Crescent Road, Newport

6.2 Marina access

As noted above, the navigation access width along the marina approach adjacent to the proposed berths would also need to be a minimum of approximately 1.5 times the length (1.5L) of the design vessel nominated for each berth.

Review of the aerial photo overlay of the proposed marina layout (refer **Attachment C** and **Figure 6-4**) indicates that the southern half of the proposed marina (i.e. LOT 5 to LOT 2 berths) has a similar footprint within the waterway to the existing marina. The available navigation access width from the proposed marina pontoons to opposing private jetties/pontoons or vessels is approximately 34-35m, which provides adequate width for access by the proposed vessels of up to 22m length ($1.5L = 33m$).

Further north of the LOT 2 berth, the available navigation width increases from 34-35m to 45-48m (refer **Figure 6-4**), which provides adequate width for access by the proposed vessels of 20m length ($1.5L=30m$) and 22m length ($1.5L=33m$).

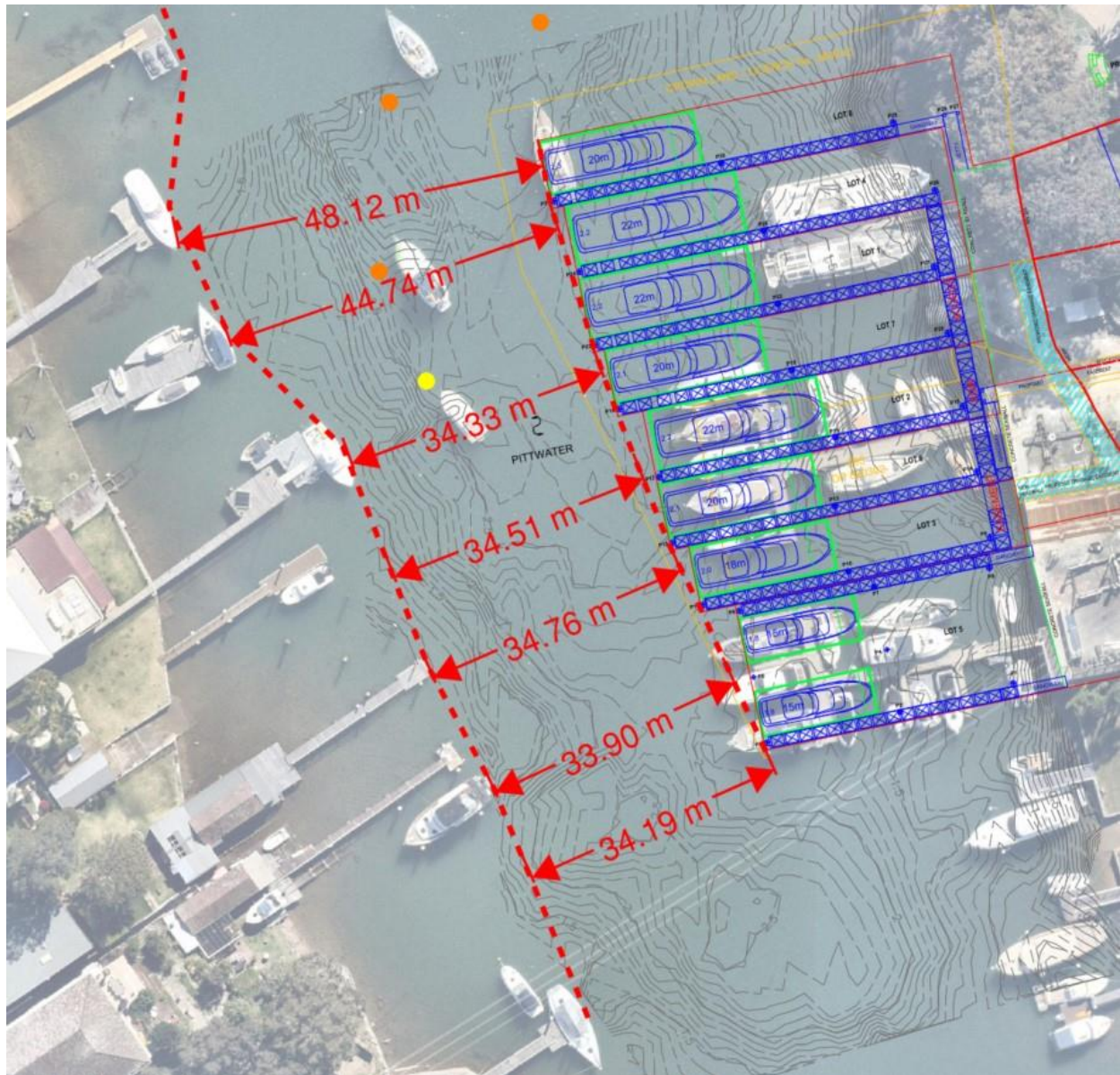


Figure 6-4: Navigation access width along proposed marina approach

6.3 Swing moorings

There are a number of existing private and commercial swing moorings located within Winji Jimmi Bay. This field of swing moorings extends from the Newport Anchorage Marina, into the entry to Old Mangrove Bay and Winji Jimmi Bay, and to the immediate north and west of the proposed marina upgrade footprint (refer **Figure 6-5**). Most of these swing moorings are commercial moorings, with a small number of private moorings.



Figure 6-5: Swing moorings in locality of Sirsi Marina (orange = commercial mooring, yellow = private mooring)

Vessels navigating into Winji Jimmi Bay are required to comply with the 4 knot speed limit and to transit through the swing mooring field with spaces between moored vessels typically being 25-30m. It is

anticipated that navigation into Winji Jimmi Bay would continue in a similar manner, with vessels carefully making their way through the swing mooring field at low speed to access the marina berths. It is noted that the existing marina has catered for a vessel size of up to 22m⁴, which is equivalent to the maximum vessel size for the proposed upgraded marina. Given the reduction in number of berths from 36 to 9 berths and the cessation of the previous boat maintenance and repair business, the frequency of boat movements to the proposed upgraded marina servicing residents of the onshore development would be expected to be reduced in comparison to the existing situation.

There are several swing moorings that are positioned in close proximity to the proposed marina (refer **Attachment C**) and will need further investigation to establish their exact position, occupation status, and any potential impacts on marina access. It is noted that the proponent currently holds licences for ten (10) swing moorings in the vicinity of the proposed marina (refer **Figure 6-6**), and that these moorings are currently vacated and not occupied by vessels (refer **Figure 6-7**). It is recommended that consultation with Crown Lands and TfNSW-Maritime is undertaken to:

- determine an accurate location for each swing mooring (mooring block survey);
- establish the configuration and status of each swing mooring (vessel type/specifications, mooring line length/swing radius, active/inactive occupation, mooring holder details); and,
- investigate options for management of the existing swing moorings.



Figure 6-6: Swing mooring licences held by proponent in the vicinity of the proposed marina

⁴ This maximum size vessel comprised a motor yacht cruiser with a length of 72 feet (22m), beam of 5.6m, and draught of 1.3m.



Figure 6-7: Aerial photograph of waterway area in vicinity of marina site (source: Nearmap, dated 12 March 2024)

7 Overwater Lease Boundary

The proposed overwater lease boundary is shown on the aerial photo overlay of the proposed marina layout (refer **Attachment C**, red line indicates proposed overwater lease boundary).

The size of the proposed lease area footprint in the alongshore direction is dictated by the berth width requirements of AS3962:2020 (refer **Section 3**) that are necessary to accommodate the vessel sizes nominated at each of the 9 berths. The size of the lease area footprint in the offshore direction is dictated by the water depths in the nearshore area that require vessels to be berthed away from the shoreline. As noted previously, the footprint of the marina has been minimised by nominating a 'bow in' berthing arrangement to enable vessels to be positioned closer to shore.

The alignment of the offshore lease boundary (western lease boundary) generally follows the proposed extent of pontoons and berthed vessels, whilst still providing adequate waterway width (clearance) to the existing jetties and berths along the opposite shoreline for access of the nominated vessel sizes into the proposed marina berths (refer **Section 6.2**).

The alignment of the southern lease boundary follows the alignment of the adjacent onshore private property boundary, which is approximately shore normal (perpendicular to the shoreline) at this location.

The alignment of the northern lease boundary follows the outside perimeter of the northernmost berth proposed for a 20m length vessel, and is approximately shore normal. At this location the onshore cadastral boundaries adjacent to The Avenue are at an angle to the shoreline that is not shore normal. As such, projection of these cadastral boundaries overwater would be contrary to the typical practice of constructing foreshore structures (jetties and wharfs) perpendicular to the shoreline, as has been adopted for the layout of the proposed marina upgrade and for the existing adjacent marine structures in Winji Jimmi Bay. As noted in **Section 6.1**, the alignment of the northern lease boundary provides adequate waterway width to the north for access by the existing sailing yacht to the private jetty on the water frontage of 50 The Avenue, Newport.

8 Concluding Remarks

This assessment of navigation impacts in relation to the proposed berth upgrades to the Sirsi Marina at 122 Crescent Road, Newport indicates that the proposed marina is generally compliant with guidance provided in *AS3962:2020 Marina Design*.

The extent and scale of the upgraded marina has been minimised by selection of design vessels that are appropriate for the available water depths and comparable to the maximum size of vessels that were berthed at the existing marina. A 'bow in' berthing arrangement has been nominated to enable vessels to be positioned closer to shore along the floating marina pontoons. This berthing arrangement will be mandated in the documentation of Marina Rules and Berthing Agreements (or similar), and will also be clearly indicated with signage⁵ positioned along each berthing pontoon at the location where available water depths reduce to less than that required for safe all-tide mooring of the vessels allocated to each berth.

The management of existing swing moorings in the vicinity of the marina will need to be confirmed in consultation with Crown Lands and TfNSW-Maritime representatives.

We trust that the above advice is suitable for your current needs. It is understood that this assessment will form part of initial discussions ahead of formal lodgement of a DA with Council and referral to relevant government agencies as part of that process.

Please do not hesitate to contact the undersigned if you have any questions or clarifications.

Yours Sincerely,

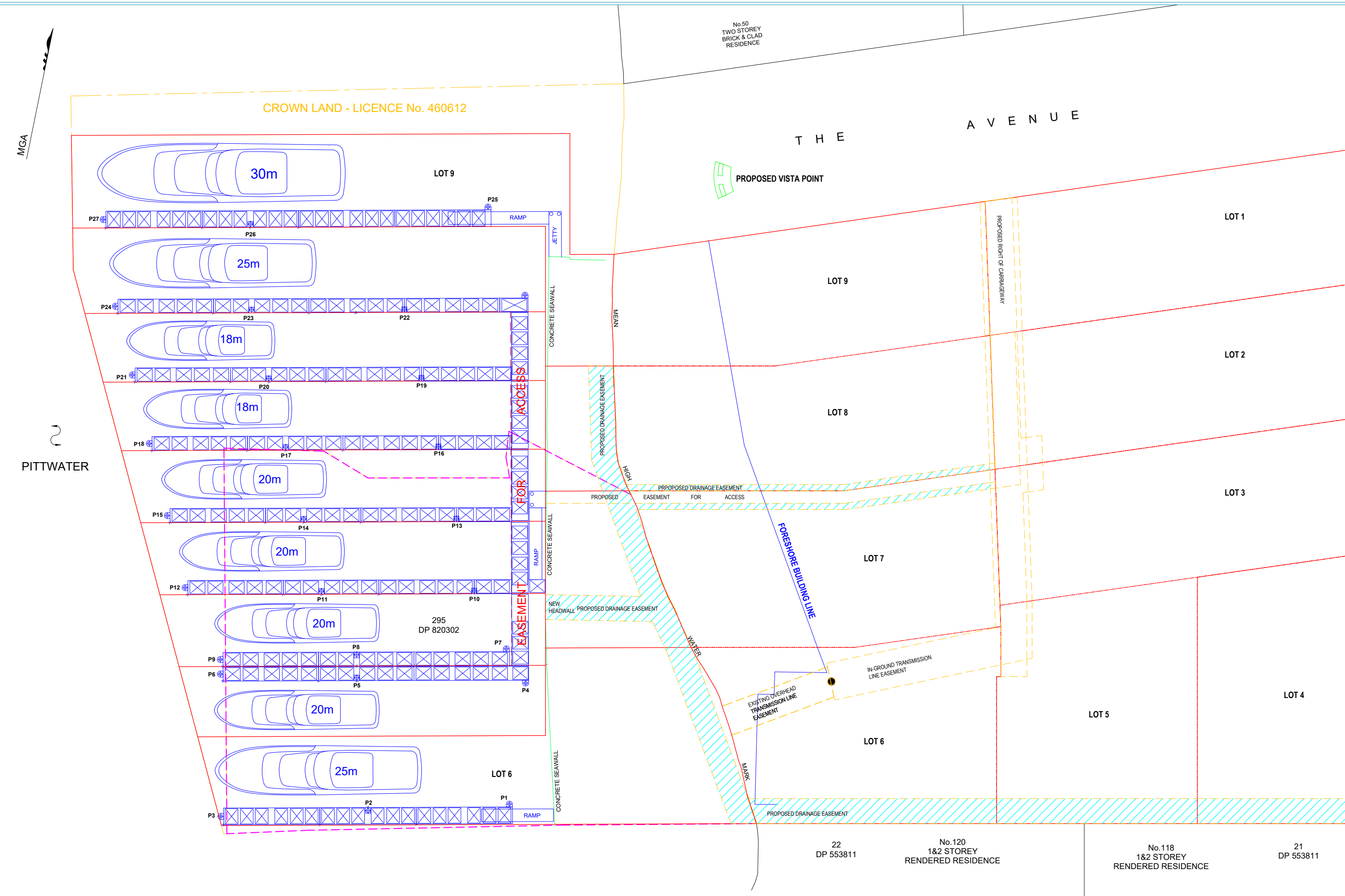


Matt Potter

Principal Coastal Engineer
Water & Maritime

⁵ Indicating the berth number, maximum vessel draught, and warning of shallow water depths closer to shore. Signage shall have high visibility for berthing vessels and marina users with 50mm high letters in contrasting colours.

Attachment A: Original Marina Layout Plan



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Boxall Surveyors is a registered professional body and is not responsible for any errors or omissions in this plan.
This plan is a technical drawing and should not be used for any other purpose without the written consent of Boxall Surveyors.



PRINT IN COLOUR

LEGEND:

LOT AND DP:
LOTS 2&3 IN DP 210342
LOT 1 IN DP 503390
LOT 21 IN DP 545339
LOTS 111&112 IN DP 556902
LOT 295 IN DP 820302

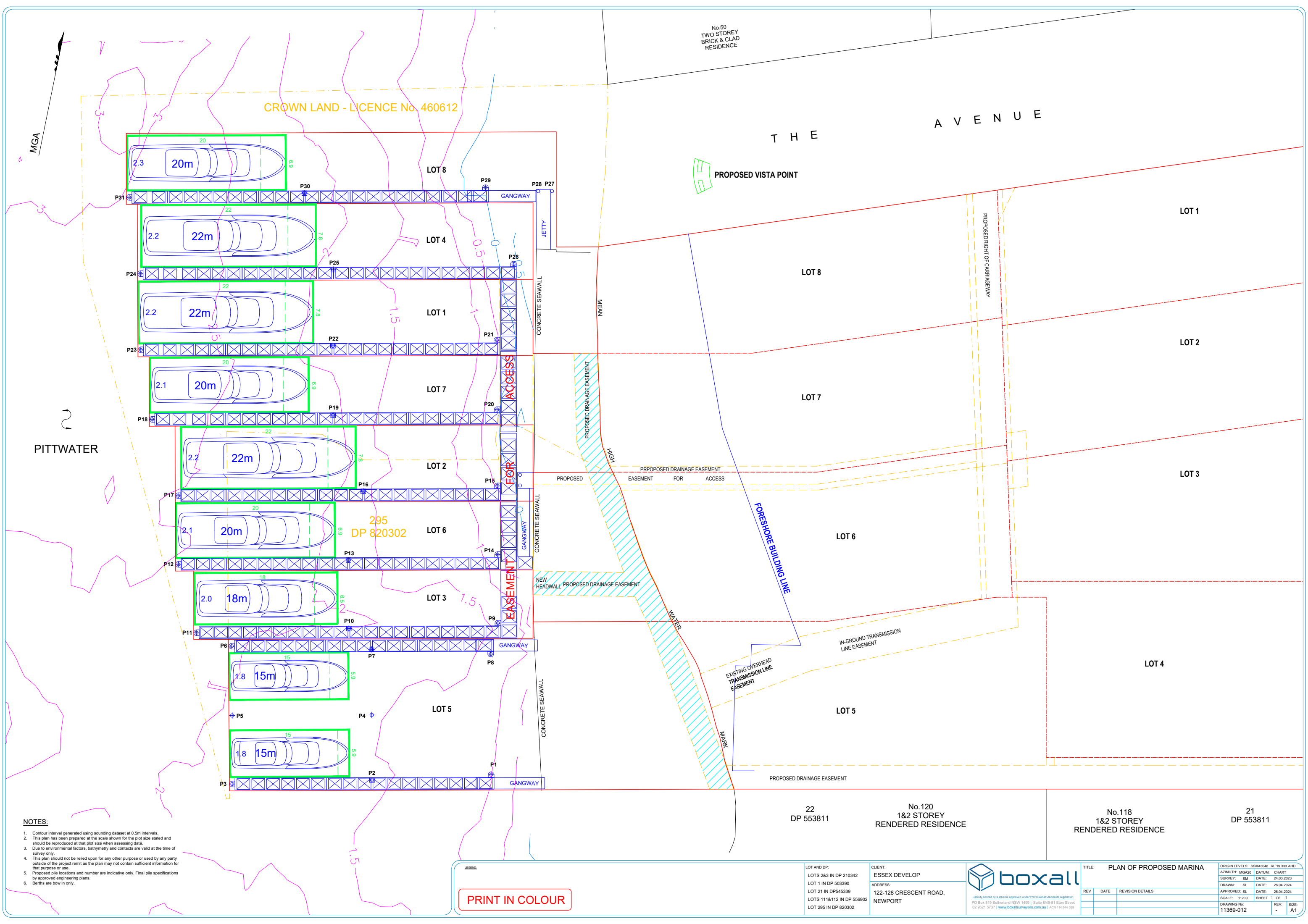
CLIENT:
ESSEX DEVELOP
ADDRESS:
122-128 CRESCENT ROAD,
NEWPORT



TITLE:		PLAN OF PROPOSED MARINA SUBDIVISION OPTION 3	
REV	DATE	REVISION DETAILS	
A	28.06.2022	PROPOSED LAND SUBDIVISION ADDED	
B	28.06.2022	ACCESS TO PONTOONS MOVED BELOW SEA WALL	

ORIGIN LEVELS:	SSM43648	RL 19.333
AZIMUTH:	MG420	DATUM: AHD
SURVEY:	LC	DATE: 04.02.2022
DRAWN:	SL	DATE: 19.04.2022
APPROVED:	SL	DATE: 19.04.2022
SCALE:	1:200	SHEET 1 OF 1
DRAWING No:	11369-003-(B)	REV: B
SIZE:	A1	

Attachment B: Proposed Marina Layout Plan



- NOTES:
1. Contour interval generated using sounding dataset at 0.5m intervals.
 2. This plan has been prepared at the scale shown for the plot size stated and should be reproduced at that plot size when assessing data.
 3. Due to environmental factors, bathymetry and contacts are valid at the time of survey only.
 4. This plan should not be relied upon for any other purpose or used by any party outside of the project remit as the plan may not contain sufficient information for that purpose or use.
 5. Proposed pile locations and number are indicative only. Final pile specifications by approved engineering plans.
 6. Berths are bow in only.

LEGEND:

PRINT IN COLOUR

LOT AND DP:
LOTS 2&3 IN DP 210342
LOT 1 IN DP 503390
LOT 21 IN DP545339
LOTS 111&112 IN DP 556902
LOT 295 IN DP 820302

CLIENT:
ESSEX DEVELOP
ADDRESS:
122-128 CRESCENT ROAD,
NEWPORT



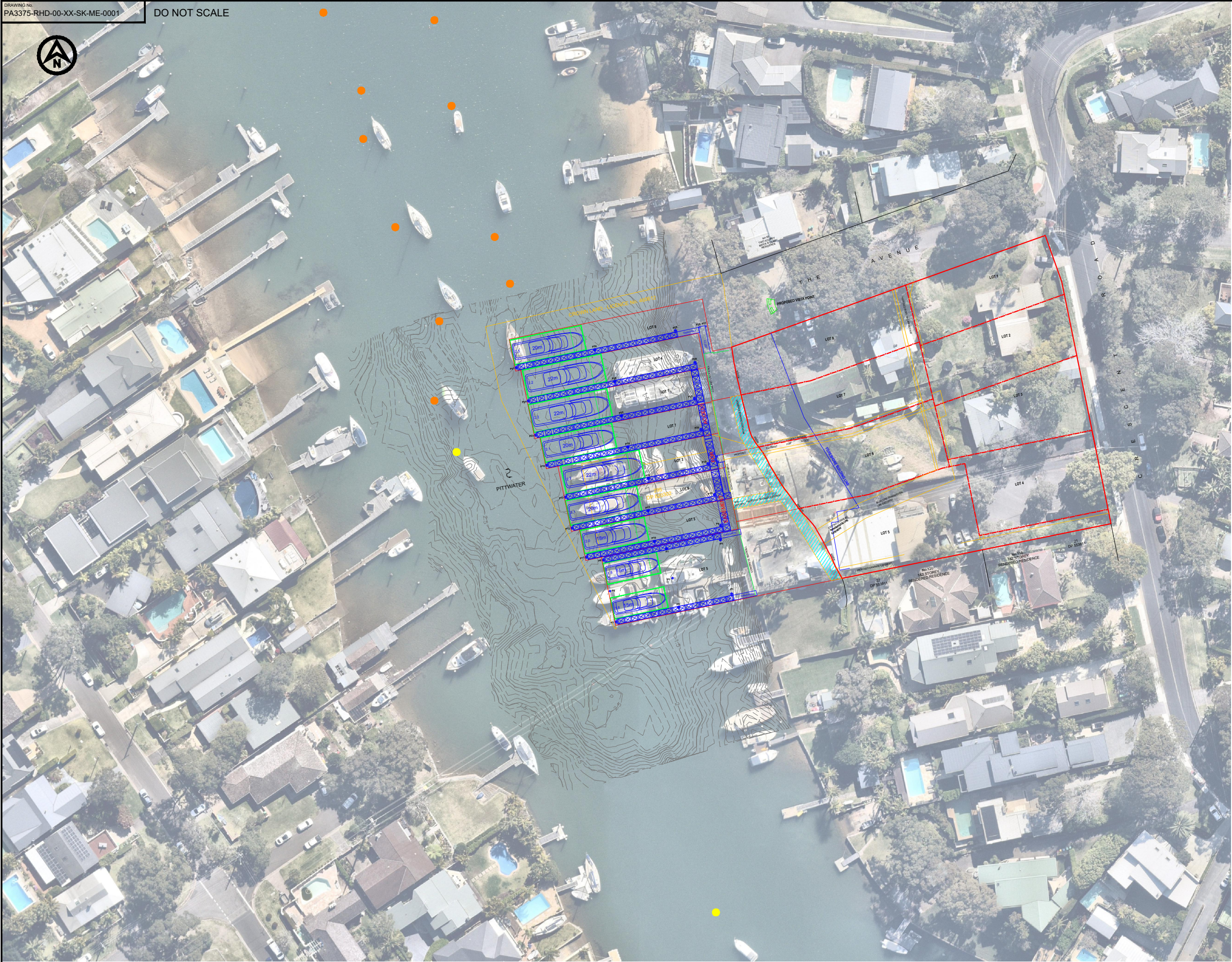
TITLE: PLAN OF PROPOSED MARINA

REV	DATE	REVISION DETAILS

ORIGIN LEVELS:	SSM43648	RL 19.333 AHD
AZIMUTH:	MG420	DATUM: CHART
SURVEY:	SM	DATE: 24.03.2023
DRAWN:	SL	DATE: 26.04.2024
APPROVED:	SL	DATE: 26.04.2024
SCALE:	1:200	SHEET 1 OF 1
DRAWING No:	11369-012	REV: -
		SIZE: A1

Attachment C:

Aerial photo overlay of proposed marina upgrade



NOTES

1. ALL WATER DEPTHS SHOWN ARE RELATIVE TO CHART DATUM (CD).
2. AERIAL PHOTOGRAPH IS SOURCED FROM NEARMAP DATED 30 AUGUST 2023.
3. MARINA LAYOUT WAS PROVIDED TO RHDHV IN CAD FORMAT BY BOXALL SURVEYORS ON 2 MAY 2024.
4. SWING MOORING LOCATIONS WERE PROVIDED BY TFNSW SPATIAL INFORMATION FROM THEIR GIS DATABASE ON 8 MARCH 2023.

LEGEND

- COMMERCIAL MOORING
- PRIVATE MOORING
- WATER DEPTH BELOW CHART DATUM

REV	DATE	DESCRIPTION	BY	CHK	APP
P02	10.05.2024	PROPOSED LAYOUT UPDATED	SGB	MP	
P01	23.02.2023		SGB		

REVISIONS

CLIENT

PROJECT

SIRSI MARINA
122 CRESCENT ROAD, NEWPORT

TITLE

MARINA LAYOUT

Drawn by: SGB
Scale: AS SHOWN
Date: 10.05.2024
Project: PA3375-RHD-00-DR-ME-0001[1]

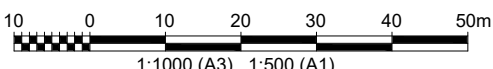
Royal HaskoningDHV
Enhancing Society Together

Level 15, 99 Mount Street
North Sydney NSW 2060
Australia
Tel +61 2 98545000
Fax +61 2 96200660
Email: project.admin@haskoningdhv.com
Website: www.royalhaskoningdhv.com

DRAWN	COORD. SYSTEM	DATUM	DATE
SGB	(ENTER HERE)	(ENTER HERE)	10.05.2024
SCALE	REF.	SUITABILITY	REVISION
AS SHOWN	PA3375-RHD-00-DR-ME-0001[1]	S0	P02

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Marco Silva
Development Director
Essex Develop
Suite 14, 26-32 Pirrama Road
Upper Deck (Jones Bay Wharf)
Pyrmont NSW 2009

HASKONING AUSTRALIA PTY LTD.

Level 15
99 Mount Street
North Sydney NSW 2060
Australia

+61 2 8854 5000 **T**
project.admin.australia@rhdhv.com **E**
royalhaskoningdhv.com **W**

Date:	14 June 2024	Contact name:	Matthew Potter
Your reference:		Telephone:	0406 931 783
Our reference:	PA3775-RHD-XX-XX-CO-X-0004	Email:	matt.potter@rhdhv.com
Classification:	Project related		
Enclosures			

Dear Marco,

RE: SIRSI MARINA, NEWPORT - RESPONSES TO DPI-FISHERIES MATTERS

Further to recent correspondence, it is understood that initial feedback on the marina proposal has been received from DPI-Fisheries who have identified several matters to be addressed in an updated Aquatic Ecology Assessment (AEA), to be prepared by Ocean Environmental.

Royal HaskoningDHV (RHDHV) have been requested to provide responses to these matters as an input into the updated AEA. These responses are provided in the following, below the DPI-Fisheries comments shown in bold italic text.

We note that the site is located within a shallow, narrow bay. Given the facilities proposed, we suggest that the AEA determines whether these would change hydrology or e-folding time within the bay and if so, whether this would adversely affect water quality and marine ecology within the bay.

In the vicinity of the proposed marina upgrade, Winji Jimmi Bay has a waterway width of around 110-120m and water depths increase from the shallow foreshore areas to a maximum depth of approximately 2.5-3m below Chart Datum (which represents the water level of the lowest astronomical tide).

The aerial photo overlay of the proposed marina layout shown in **Figure 1** below indicates that the upgraded marina would have similar or reduced encroachment into the waterway and lower vessel berthing density along the southern five berths when compared to the existing marina facility. The waterway encroachment of the northern four berths would be similar to that of the southern portion of the existing and upgraded marina, and vessel berthing density would be similar to that of the existing marina facility with single vessels of up to 22m length occupying each individual berth.

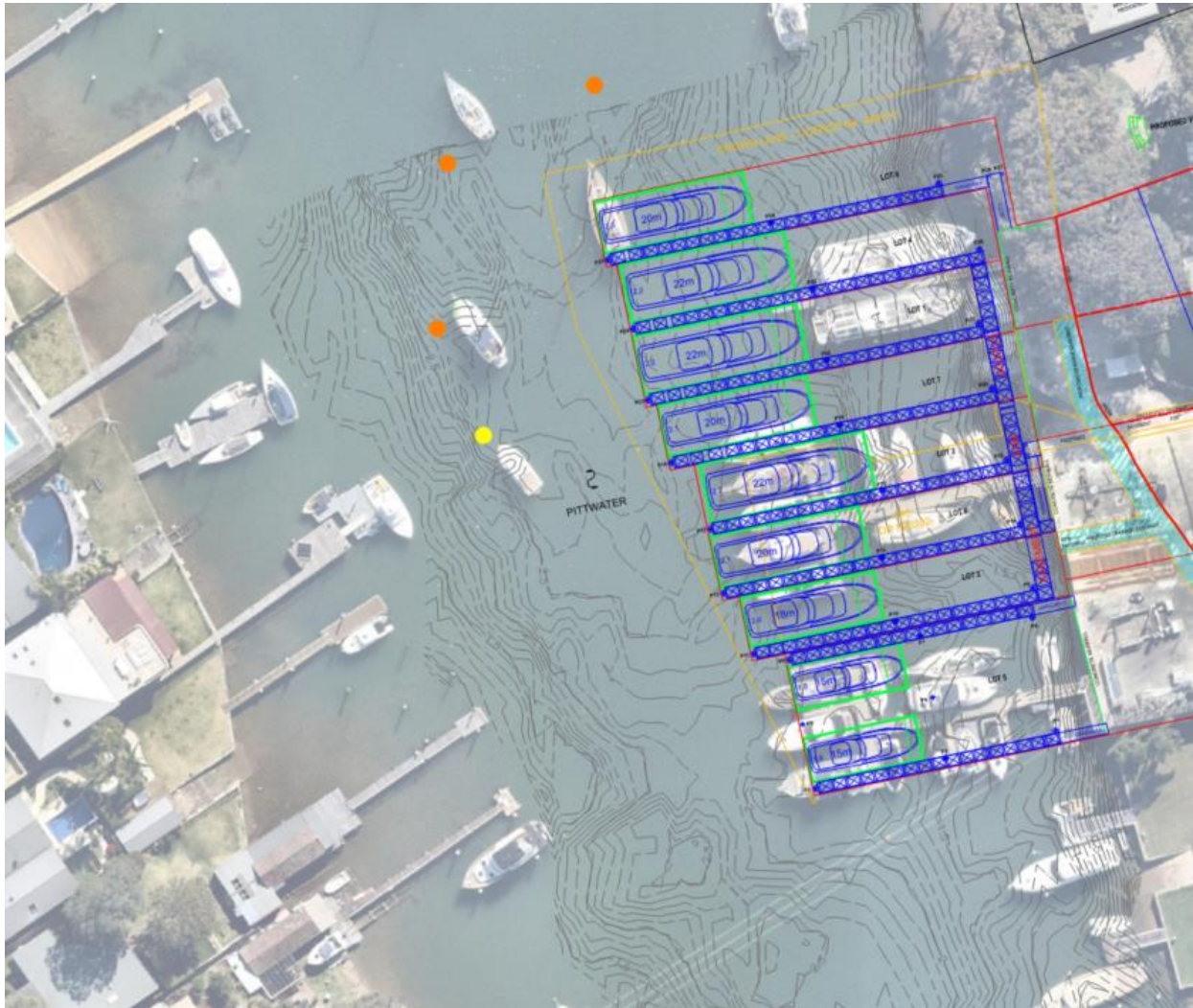


Figure 1: Aerial photo overlay of proposed marina layout

The upgraded marina would comprise floating pontoons that are secured in position by restraint piles located at intervals along each pontoon arm. Typical marina pontoons would have a freeboard (height above waterline) of 400mm and a similar draught (depth below waterline). Each pontoon arm would be secured by three restraint piles with a nominal diameter of 500-600mm. No land will be reclaimed beyond the existing concrete seawall at the marina site. If a cross-section is taken across the waterway through the northern portion of the upgraded marina layout, the relative area occupied by floating pontoons and restraint piles in the waterway can be estimated (refer **Attachment A**). The cross-sectional area (determined with water level at +0.925m CD, or approximately mean sea level) of the waterway at this location is approximately 311m² and the marina structures would occupy an area of approximately 23m². As such, the marina structures would occupy 7.4% of the cross-sectional area of the waterway.

Given the minimal (<10%) occupation of the waterway cross-sectional area by the upgraded marina structure and the generally reduced vessel berthing density when compared to the existing marina (i.e. 36 existing berths vs 9 proposed berths), the proposed marina upgrade would not be expected to significantly alter the tidal flow of water in and out of Winji Jimmi Bay relative to existing conditions. As such the influence of the proposed facility on e-folding times would be minimal, with no untoward consequences expected for water quality or marine ecology within the bay.

We also note that marine vegetation is located on both sides of the head of the bay. Given that large vessels are proposed to be berthed at the facilities, we suggest that the AEA determines whether prop wash to the seabed (that could potentially constitute dredging) would occur at the berths or during ingress and egress to the bay, and if so, whether this would significantly increase impacts (from present levels) to marine vegetation (e.g. from turbidity, wash, mobilised contaminants) caused by vessel movements generally (ie would impacts from the proposal significantly contribute to cumulative impacts on marine vegetation?).

The closest mapped area of marine vegetation is located on the eastern foreshore near the head of Winji Jimmi Bay. This comprises two small patches of mangroves positioned greater than 100m north of the marina site. There is no other marine vegetation mapped within Winji Jimmi Bay. Field surveys conducted at the marina site by Ocean Environmental in 2022 did not identify the presence of any mangrove, saltmarsh, seagrass or kelp macroalgae vegetation areas.

Vessels navigating into Winji Jimmi Bay are required to comply with the existing 4 knot speed limit and to transit through the swing mooring field with spaces between moored vessels typically being 25-30m. It is anticipated that navigation into Winji Jimmi Bay would continue in a similar manner, with vessels carefully making their way through the swing mooring field at low speed to access the marina berths. It is noted that the existing marina has catered for a vessel size of up to 22m, which is equivalent to the maximum vessel size for the proposed upgraded marina. Given the reduction in number of berths from 36 to 9 berths and the cessation of the previous boat maintenance and repair business, the frequency of boat movements to and from the proposed upgraded marina servicing residents of the onshore development would be expected to be reduced in comparison to the existing situation. As such, given the low speed ingress and egress into the Bay, retained 22m maximum vessel size, and reduced boat movements, vessel access to the proposed marina would not be expected to increase impacts (from present levels) to marine vegetation.

As noted above, marine vegetation was not identified during field surveys at the marina site. Notwithstanding, there are several factors that would minimise seabed disturbance from vessels manoeuvring in and out of the proposed marina berths. As shown in **Figure 2** below, the berthing arrangement at the existing marina required vessels to manoeuvre into berths that were close to the shoreline in relatively shallow water. The boat maintenance and repair business also used a boat ramp and recessed dock area for vessel slipping, which also required vessels to access areas close to the shoreline.



Figure 2: Existing Sirsi Marina site (Source: NSW Government SIX Maps)

The proposed upgraded marina comprises 9 residential berths that are located in sufficient water depths for safe all-tide mooring that exist further away from the shoreline, with vessels proposed to be berthed in a 'bow in' (i.e. bow facing the shoreline) arrangement. As a result, vessels would manoeuvre into berths using the deepest section of the waterway and berthed vessels would have their propellers in deeper water and facing away from the shoreline. This berthing arrangement will be mandated in the documentation of Marina Rules and Berthing Agreements (or similar), and will also be clearly indicated with signage positioned along each berthing pontoon at the location where available water depths reduce to less than that required for safe all-tide mooring of the vessels allocated to each berth. The Marina Rules will also state clear expectations for marina user behaviour, including avoiding the excessive use of propulsion whilst berthing. As such, given the improved position of berthed vessels away from shallow shoreline areas, 'bow in' berthing arrangement, expected reduced boat movements, and the absence of sensitive marine vegetation in close proximity to the marina, it is considered that vessel manoeuvring at the proposed marina would not result in any significant increased impacts to marine vegetation from seabed disturbance when compared to the existing situation.

We trust that the above advice is suitable for your current needs and will be incorporated into the amended AEA prepared by Ocean Environmental.

Please do not hesitate to contact the undersigned if you have any questions or clarifications.

Yours Sincerely,



Matthew Potter

Principal Engineer
Water & Maritime

Attachment A: Waterway Cross-Section at Marina Location

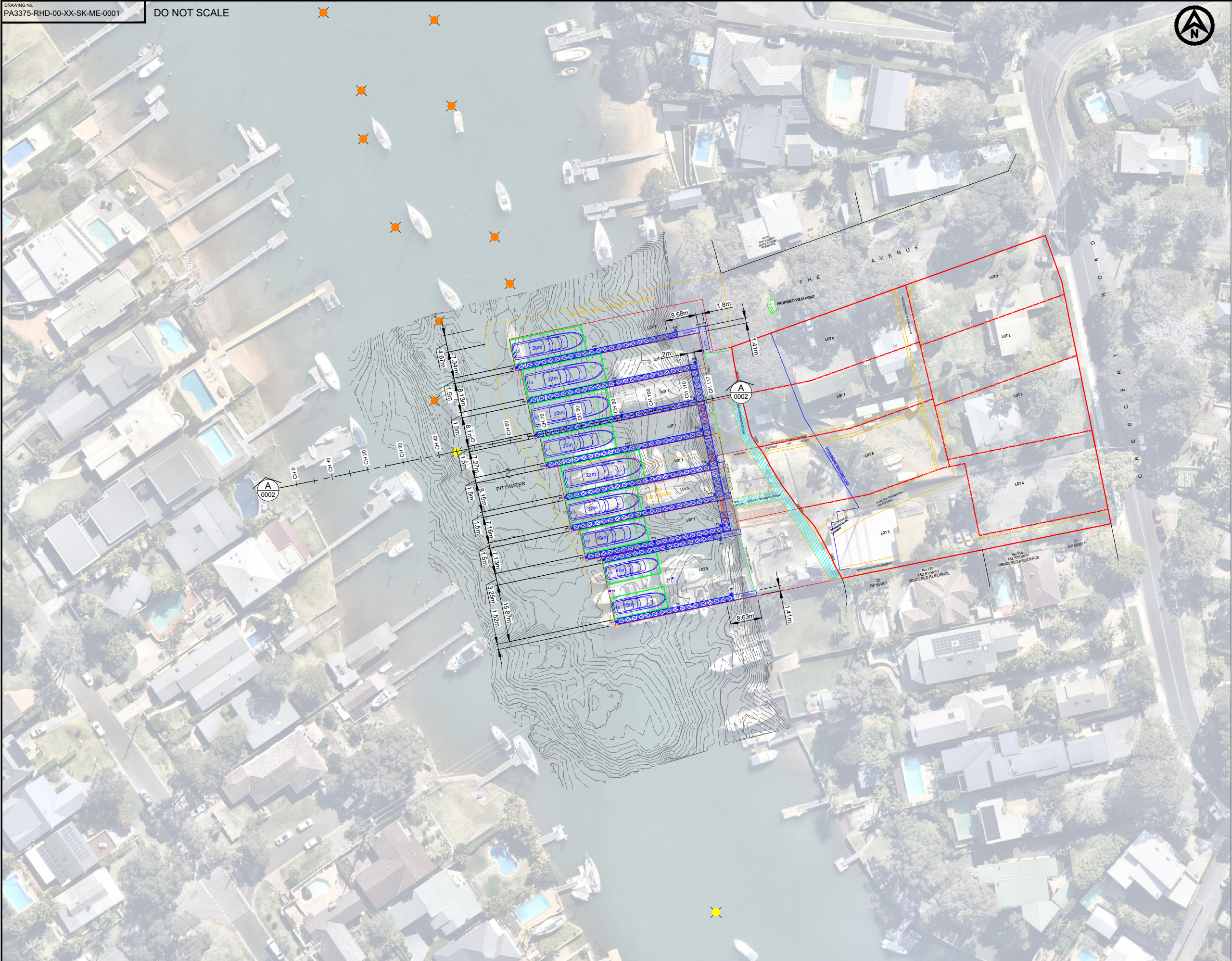


NOTES

1. ALL WATER DEPTHS SHOWN ARE RELATIVE TO CHART DATUM (CD).
2. AERIAL PHOTOGRAPH IS SOURCED FROM NEARMAP DATED 30 AUGUST 2023.
3. MARINA LAYOUT WAS PROVIDED TO RHDHV IN CAD FORMAT BY BOXALL SURVEYORS ON 2 MAY 2024.
4. SWING MOORING LOCATIONS WERE PROVIDED BY TFNSW SPATIAL INFORMATION FROM THEIR GIS DATABASE ON 8 MARCH 2023.

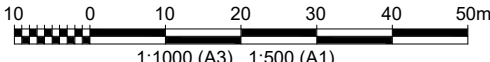
LEGEND

- COMMERCIAL MOORING
- PRIVATE MOORING
- - - 3.0 - - - WATER DEPTH BELOW CHART DATUM

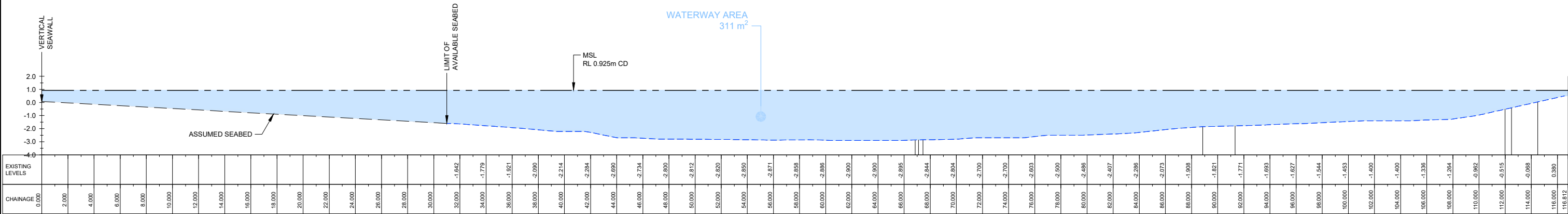


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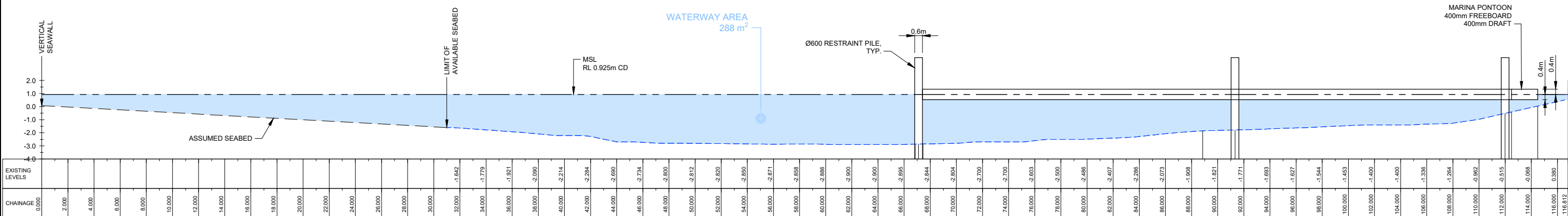
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P03	11.06.2024			SAM	MP
P02	10.05.2024	PROPOSED LAYOUT UPDATED		SGB	MR INFORMATION
P01	23.02.2023			SGB	
REV	DATE	DESCRIPTION		BY	CHK APP
REVISIONS					
CLIENT					
ESSEX DEVELOP PTY LTD					
PROJECT					
SIRSI MARINA 122 CRESCENT ROAD, NEWPORT					
TITLE					
MARINA LAYOUT					
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DATUM [ENTER HERE]					
DATE 13.06.2024					
SCALE AS SHOWN					
REF. PA3375-RHD-00-DR-ME-0001(1)					
DRAWING No. PA3375-RHD-00-XX-SK-ME-0001					
SUITABILITY S0					
REVISION P03					



SECTION A
1:150 (A1) EXISTING WATERWAY



SECTION A
1:150 (A1) WATERWAY INCLUDING PROPOSED MARINA STRUCTURE

P01	23.02.2023	FOR INFORMATION					BAM	MP	
REV	DATE	DESCRIPTION					BY	CHK	APP
REVISIONS									
CLIENT									
ESSEX DEVELOP PTY LTD									
PROJECT									
SIRSI MARINA 122 CRESCENT ROAD, NEWPORT									
TITLE									
WATERWAY CROSS-SECTIONS									
<div><div><div><div>Royal HaskoningDHV</div><div>Enhancing Society Together</div></div></div><div><div>Level 15, 99 Mount Street North Sydney NSW 2060 Australia Tel +61 2 88545000 Fax +61 2 95200960 Email: project.admin@haskoningdhv.com Website: www.royalhaskoningdhv.com</div></div></div>									
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SCALE AS SHOWN	REF. PA3375-RHD-00-DR-ME-0001[1]								
DRAWING No. PA3375-RHD-00-XX-SK-ME-0002							SUITABILITY S0		REVISION P01

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