

Our Reference: 22-56-REP-01 revision 0
Our Project/Job Nos.: 22-56 / E00007
Our Quote: 18-01-2023
Your Reference: n/a

Friday, 5 May 2023

Port of Townsville Limited
Administration Building
Benwell Road
Townsville Qld 4810

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2024/1472

Date: 09 / 09 / 2024



Attention: David Sibley - Chief Financial Officer Email: dsibley@townsville-port.com.au
CC: Esther Bank –Project Manager Email: Ebank@townsville-port.com.au

Subject: REPORT FOR STAGED SLIPPING OF EX-HMAS TOWNSVILLE

Opening Sentence.

We thank you for the opportunity to be involved in this exciting project and hope the information provided is of assistance.

This report aims to provide further detail and complete ROM cost for your evaluation and follows on to our Preliminary Report of 27 March 2023 prepared for your PoTL board meeting.

Norship realise through discussions with yourselves that resources are limited for this project so our recommendations and comments are structured so as to achieve a cost effective solution using minimal resources and materials.

1.0 Background

In July 2019 Norship provided a Report to TMML /PoTL for a permanent hardstand proposal for the decommissioned Fremantle Class Patrol Boat HMAS Townsville (referred herein as vessel). The vessel is now solely retained by the PoTL. Further background information can be viewed in the 2019 Report.

This Report provides details and ROM costs for a 2 Phase approach to the permanent installation of the vessel. Tasks not undertaken by Norship are not listed nor provided with ROM costs.

The intent is to firstly slip the vessel to provide safe storage in preparation for in the future to have the vessel on permanent display and open to the general public located at the old Curtain Brothers Slipway, Ross Creek Townsville.

Norship has been requested to undertake the project management of the slipping and reporting directly to PoTL. Norship has here-in investigated tasks including planning, design, technical support and engineering approval as well as the supply of new or hired equipment and materials. Wherever possible local contractors will be engaged.

2.0 Slipping - PHASE 1

Involves the slipping of ex-HMAS Townsville (the vessel) for general maintenance and medium to long term storage.

This Phase provides for the concrete foundations and fabrication of the permanent installation cradles as, not to do so, would mean this task would be very expensive and difficult should it be undertaken at a later date.

Norship will be engaging local contractors to do most Townsville based tasks unless noted otherwise below.

Preliminary drawing showing the slipping process are attached.

We have allowed for the following primary tasks generally proceeding in the order as listed:-

- Engage local civil engineers to provide geotechnical investigation of the foundation locations and design the concrete foundations based on loadings including those for cyclone and flooding.
- Norship to design installation cradles and provide required RPEQ approvals.
- Norship to provide naval architect and drafting for the slipping operations.
- Norship to project manage tasks as listed. (the remainder of tasks are PoTL responsibility).
- Engage local contractor to provide supervision, personnel and equipment (mobile crane, forklift, lighting..etc) for all on-site operations including to assist Norship with assembly and disassembly of slipway cradle system, boilermaker activities, mobile equipment operations..etc.
- Clear slipway area and remove any vegetation, mud, scrap metal..etc to allow safe access for personnel and machinery. Area to include the planned location for the heavy winching trucks to operate.
- Repair and service slipways outer rails both above and below the tidal zone to the distances determined by Norship. This may involve divers, an excavator and marine vessels to inspect the rail and clean the underwater section. Determination as to any dredging requirements is to be as advised by PoTL Environmental/Planning.
- Fit a low height temporary dam to protect lower foundation area from salt water ingress during critical stage of construction of the foundations.
- Engage a civil contractor to excavate and construct the in-ground foundations fitted with stainless steel bolt-to plates suitable for support the two (2) purpose built steel fabricated installation cradles. Note: New slipway rails will need to extend over these foundations.
- Fabricate the installation cradles (upper and lower sections), the welded-on vessel cyclone lugs and the removable 'goal posts'.
- Fabricate the stairwell for vessel access.
- Norship to modify their slipway cradles to allow fitting the upper section of the installation cradles, construct front to rear boggie link bars assemblies and fit rail mud scoops.
- Below waterline clean vessel hull at the installation cradle frame locations as a bare minimum. PoTL to move the vessel to Ross River staging location in readiness for the slipping.
- Transport the slipway cradle system and associated equipment from Cairns to Townsville.
- Engage local heavy haul company for both system trial and undertake the final slipping haulout of vessel.

- Norship Dock Master and personnel to travel to Townsville, supervise and provide personnel during the slipping operation. Travel, accommodation and other costs have been allowed for.
- Assemble (with local contractor assisting Norship) of the slipway cradles with wheeled boggies and once assembled trial them up and down the slipway to the lower position to prove the system. This may require a tug for haul-down operations.
- Fit the installation cradles to the top of the slipway cradles including the locally supplied 'goal posts'. (this task may be done for the trial).
- Engage Cairns based contractor for supply and operation of integrated hydraulic jacking system.
- Fit IBC's and fill with water to have vessel trimmed and heeled correctly for slipping.
- Remove vessel internal linings where the cyclone hold-down lugs will be welded on.
- Lower the full slipping assembly down the rails to the designated position ready for haulout.
- Move vessel (short line / multiple tug operation) from the Ross River staging area, take lines and shift vessel into the slipway to the correct location over the cradles with the aid of the 'goal posts'.
- Initially haul up the cradles with the vessel and check that all cradle bilge supports are at the correct location. This may require a diver.
- Haul the vessel up the slipway by using the winching force from the heavy haul vehicles to the final location over the foundations. The slipping operation to be under the charge of the Dock Master directing the experienced yard personnel and local marine contractor.
- Once in position, hydraulically jack up the installation cradles / vessel sufficiently to allow removal of the slipway cradle system. Provide safety support chocking during all jacking operations using Norship concrete, timber blocks, wedges and steel plates.
- Continue jacking until the vessel is raised to sufficient height to fit the lower section, bolt down along with the diagonal bracing, then lower the vessel with top cradle section and bolt together.
- Weld on the lugs to hull and connect the cyclone ties to the installation cradles.
- Transport slipway cradle system and other gear back to Cairns and remove alterations.
- Norship crew and jacking system contractor to return to Cairns.
- Waterblast clean vessel hull.
- Install new purpose built access stairwell.

3.0 Preparation for General Access – Phase 2

Removed

4.0 Timing for Phase 1

The process of excavate the holes and to pour the concrete foundations is best suited to neap tidal periods. We have identified periods of predicted tides less than 3.15m LAT for 4 days or more up to the New Year. This will then require a relatively low and less expensive temporary dam to protect the excavations and the concrete pour from ingress of seawater.

Periods into 2024 could also be investigated.

Ideal foundation construction periods are as follows;

Note: Timelines deleted as they have been superseded

We have identified periods to undertake slipping operations are very much tidal dependent with high tides over 3.10m LAT in the morning occurring up to New Year. Periods into 2024 could also be investigated.

It should be noted that the safe tide height may need to be greater than 3.10m LAT should the lower end of the rail be in poor condition or unable to be cleared. In this case the slipway cradles would travel to a shorter distance down the rails and a much higher tide be required.

Ideal slipping periods are as follows;

Note: Timelines deleted as they have been superseded

It should be noted that there will need to be an adequate period between pouring concrete foundation and slipping the vessel which can be advised by the civil engineer and contractor.

5.0 ROM Costs

Norship managed tasks, notes and basis for ROM costs are as follows;

- A number of smaller items are our best estimates only
- Amounts exclude GST and are based on current rates and prices.
- As agreed, PoTL are supplying environmental planning, statutory and local authority applications and approvals, vessel movement into Ross River as well as direct processing of invoicing from ourselves, contractors and suppliers.
- Below we have provided a breakdown of our ROM costs.

PHASE 1 ROM Costs

Some of the **technical items** include:- engagement of civil engineers and geotechnical, Norship naval architects and draftsmen for technical preparations, cradle design and certification, cyclone force calculations for hold-down, project management during design phase, coordination, risk and safety preparations, meetings and preslipping travel.

Our ROM cost for above is \$xxx

We have received itemised ROM cost from Townsville based contractors who would undertake a majority of the preparation and slipping tasks. Their estimate was based on a slightly different list of tasks to that now given in the above procedure so we have adjusted their ROM cost to suit.

Their tasks list is quite extensive and includes:- vessel hull cleaning and preparation for slipping, slipway & rail clean down and repairs, excavate away some of slipway apron for better access, tug, small boat and diver operations, some preparations for foundations, supply of goal posts, arrange for ABC Towing vehicles, assist Norship unloading, assembly, disassembly and loading of slipway cradles and other gear as well as slipping and lifting, supply of crane and other equipment, prepare hull and weld on cyclone lugs to hull, install stairwell as well as standby trades and site management.

The adjusted ROM cost for above is \$xxx

The fabrication of the **installation cradles** is based on those used on the HMAS Gladstone project however modified for jacking, the slipway slope and to take the goal posts. The **cyclone lugs** to be welded to the hull at deck level. The **stairwell** would have several flights and based on Norship yard stairwells.

The ROM cost for above is \$xxx

Construction details of the **foundations** will very much depend on the results of the geotechnical investigation, loads determined by Norship cyclone loading as applied by the civil engineers. We have however based ROM costs on figures provided a previous project. There is also an allowance for a protective low height **dam** to protect the excavations and the concrete pour during construction. A concrete stairwell base has also been allowed for.

The ROM cost for above is \$xxx

The ROM costs for **Norship preparations** have been allowed for including labour and materials for design, modification, fabrication and supply of slipping and jacking equipment, concrete blocks, timbers and steel shims as well as transport of all gear to and from Townsville.

The ROM cost for above is \$xxx

The supply of experience **Norship technical and project management personnel** including ROM costs for Dock Master, yard crew, project manager / naval architect as well as required vehicles, travel, accommodation and allowances has been allowed for. The duration of the period including setup, trials, slipping, jacking and packing up have been estimated.

The ROM cost for above is \$xxx

6.0 Exclusions & Risk

There are a number of tasks as listed that may either increase or reduce in scope and costs as are unknown until detailed engineering, design or technical investigation have been undertaken. Some of the obvious areas are as follows:-

- Condition of slipway rail and usable distance (particularly below low water mark)
- Foundation ground composition
- Timing for availability of Norship slipway cradles and personnel
- Weather and tidal conditions for construction of foundations and the slipping
- RL's and access location for the ramp

The comments, recommendations and ROM costs provided in this are preliminary only and for information / planning purposes only. Norship accepts no responsibility for any works undertaken based on the content, nor resultant failures or consequential losses incurred.

7.0 Abbreviations

ROM = Rough Order of Magnitude (costs)

PoTL = Port of Townsville Limited

LAT = Lowest Astronomical Tide

CB = Curtain Brothers (slipway)

PMG = Pacific Marine Group

RL's = Reduced Level heights

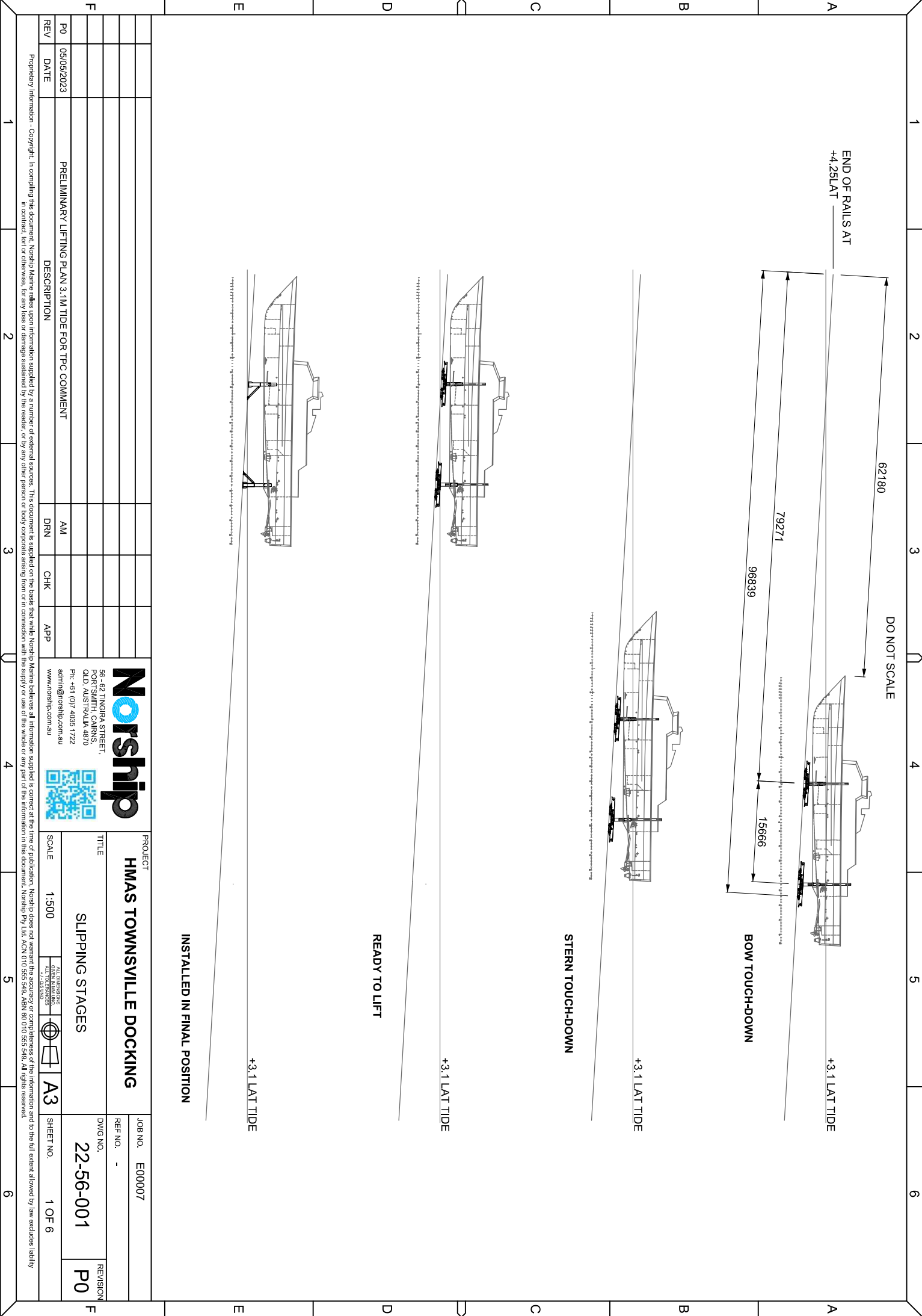
8.0 Attachment

Drawing No. 22-56-001 sheets 1 to 6

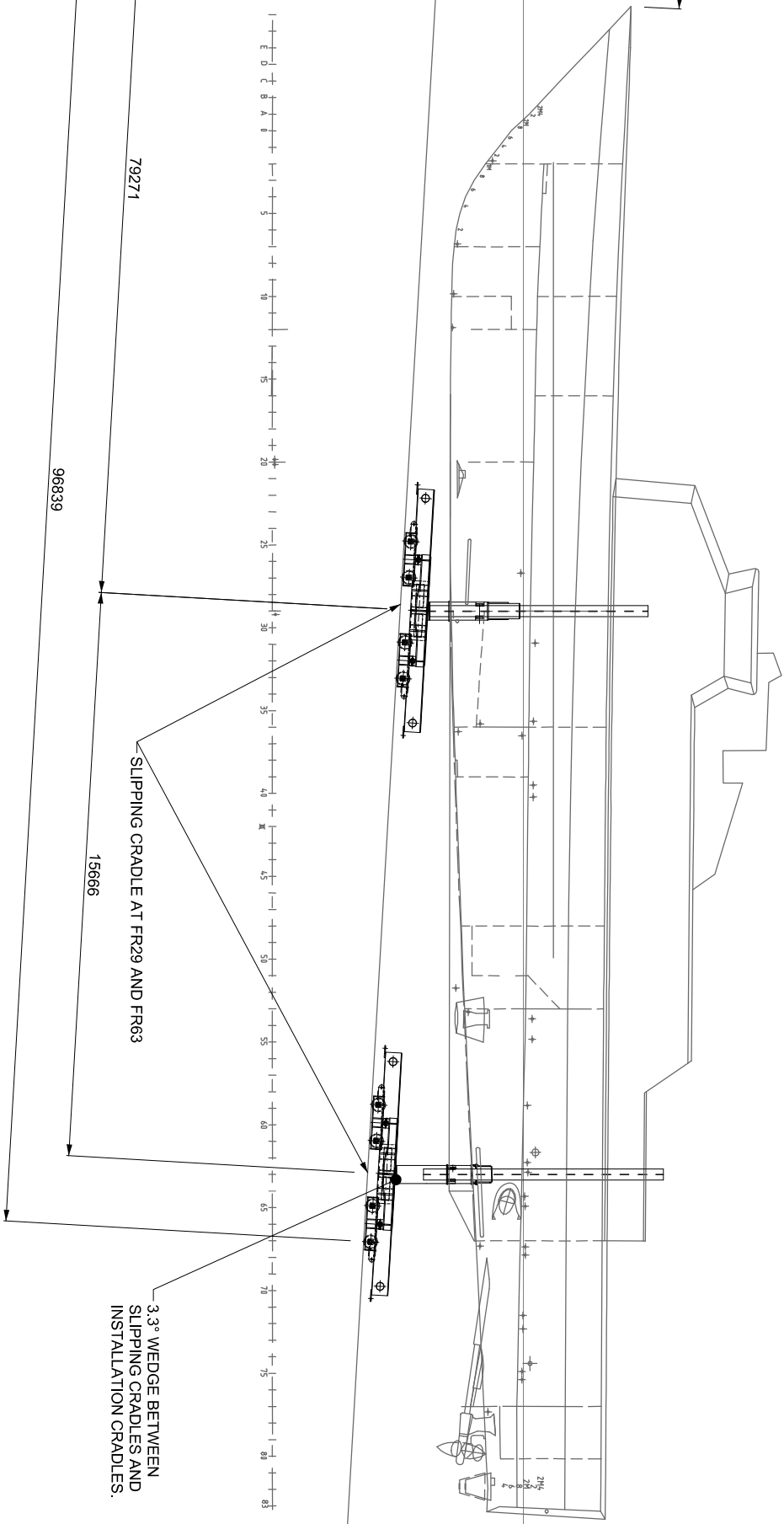
We thank you for the opportunity to be involved in this exciting project and hope the information provided is of assistance to move the project forward.

Yours Sincerely,

Marc D. Richards
Senior Naval Architect



DO NOT SCALE



56 - 62 JINGRA STREET,
PORTSMOUTH, CAIRNS,
QLD, AUSTRALIA 4870
Ph: +61 (0)7 4036 1722
admin@norship.com.au
www.norship.com.au



HIMAS TOWNSVILLE DOCKING

TITLE

SLIPPING STAGES

SCALE 1:125

ALL DIMENSIONS
UNLESS OTHERWISE
SPECIFIED



A3

JOB NO. E00007

REF NO. -

DWG NO.

22-56-001

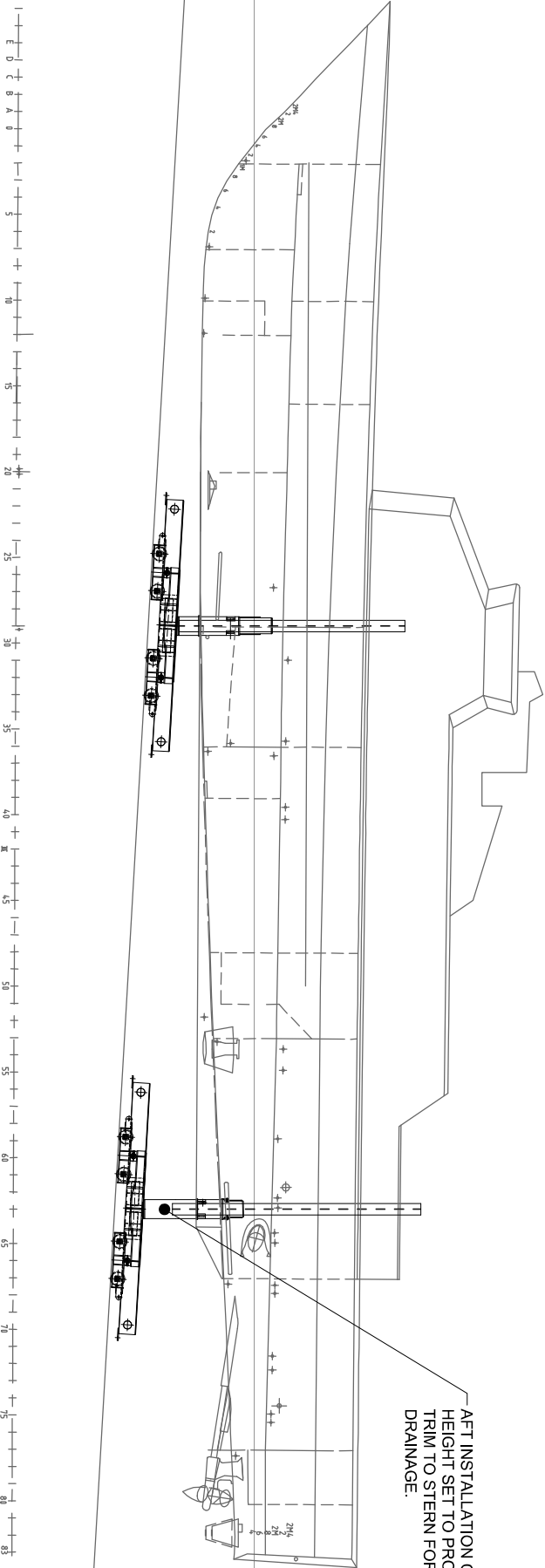
REVISION

P0

SHEET NO. 2 OF 6

Proprietary Information - Copyright. In compiling this document, Norship Marine relies upon information supplied by a number of external sources. This document is supplied on the basis that while Norship Marine believes all information supplied is correct at the time of publication, Norship does not warrant the accuracy or completeness of the information and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the reader, or by any other person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this document. Norship Pty Ltd, ACN 010 565 549, ABN 60 010 565 549, All rights reserved.

DO NOT SCALE



STERN TOUCH-DOWN

+3.1LAT TIDE

AFT INSTALLATION CRADLE
HEIGHT SET TO PROVIDE 0.25°
TRIM TO STERN FOR DECK
DRAINAGE.

Norship 66 - 62 JINGRA STREET, PORTSMITH, CAIRNS, QLD, AUSTRALIA 4870 Ph: +61 (0)7 4036 1722 admin@norship.com.au www.norship.com.au		PROJECT HIMAS TOWNSVILLE DOCKING		JOB NO. E00007	
TITLE SLIPPING STAGES		DWG NO. 22-56-001		REVISION P0	
SCALE 1:125		ALL DIMENSIONS IN METRES		SHEET NO. 3 OF 6	

Proprietary Information - Copyright. In compiling this document, Norship Marine relies upon information supplied by a number of external sources. This document is supplied on the basis that while Norship Marine believes all information supplied is correct at the time of publication, Norship does not warrant the accuracy or completeness of the information and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the reader, or by any other person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this document. Norship Pty Ltd, ACN 0710 565 549, ABN 60 0710 565 549, All rights reserved.

1

2

3

4

5

6

1

2

3

4

5

6

DO NOT SCALE

POSITION BOW ABOVE TOP OF RAILS

END OF RAILS AT
+4.25LAT

+3.11LAT TIDE



READY TO LIFT

-5.0LAT

-4.0LAT

-3.0LAT

-2.0LAT

-1.0LAT

0.0LAT

+1.0LAT

+2.0LAT

+3.0LAT

F

E

D

C

B

A

F

E

D

C

B

A

Norship

66 - 62 JINGRA STREET,
PORTSMOUTH, CAIRNS,
QLD, AUSTRALIA 4870
Ph: +61 (0)7 4036 1722
admin@norship.com.au
www.norship.com.au



PROJECT
HIMAS TOWNSVILLE DOCKING

TITLE

SLIPPING STAGES

SCALE

1:125

ALL DIMENSIONS
IN MILLIMETRES



A3

JOB NO. E00007

REF NO. -

DWG NO.

22-56-001

REVISION

P0

SHEET NO.

4 OF 6

Proprietary Information - Copyright. In compiling this document, Norship Marine relies upon information supplied by a number of external sources. This document is supplied on the basis that while Norship Marine believes all information supplied is correct at the time of publication, Norship does not warrant the accuracy or completeness of the information and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the reader, or by any other person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this document. Norship Pty Ltd, ACN 071 565 549, ABN 60 071 565 549, All rights reserved.

1

2

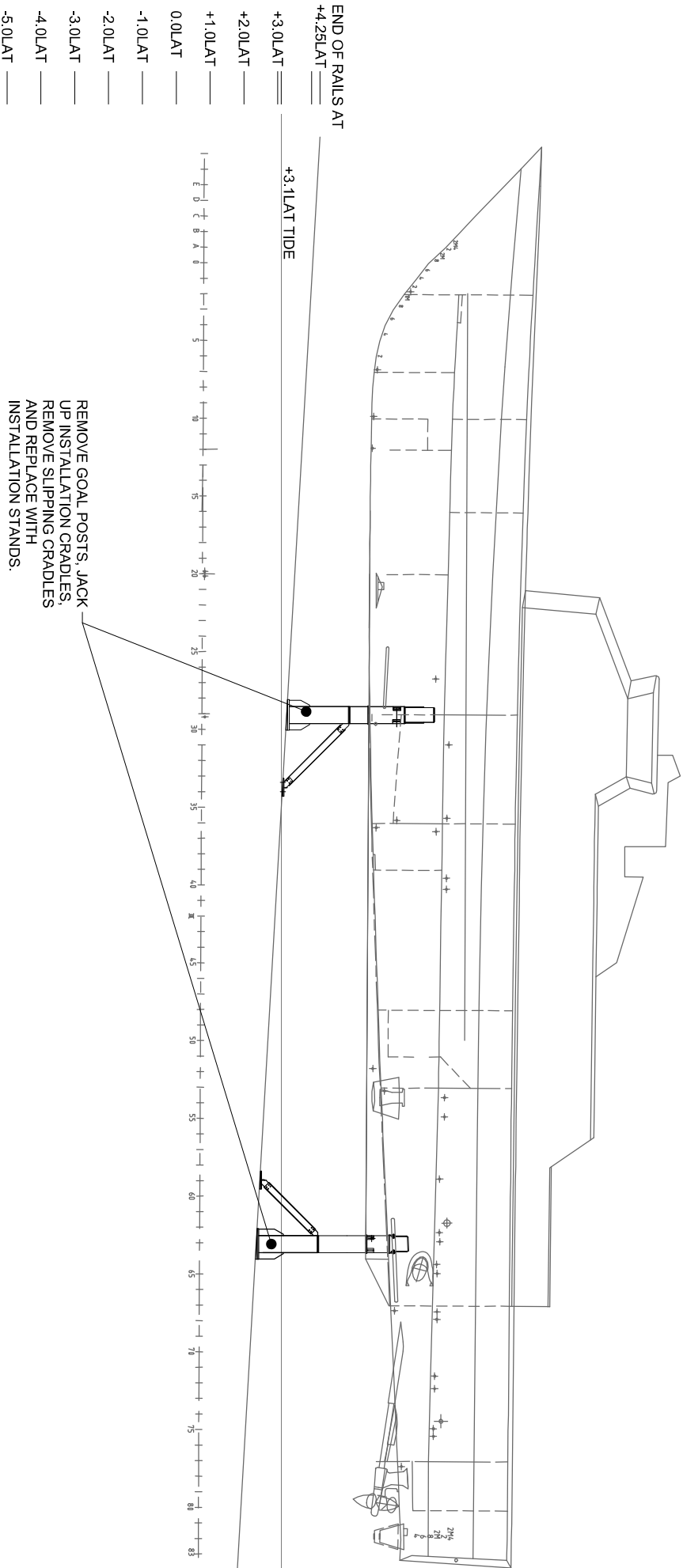
3

4

5

6

DO NOT SCALE



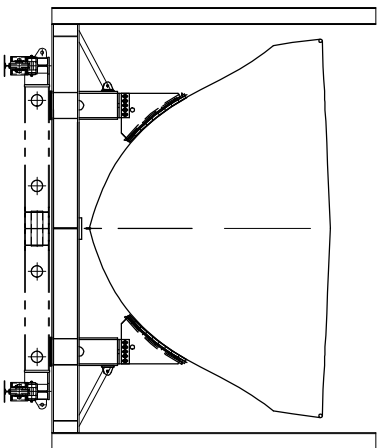
INSTALLED IN FINAL POSITION

PROJECT		JOB NO. E00007	
HIMAS TOWNSVILLE DOCKING		REF NO. -	
TITLE		DWG NO.	
SLIPPING STAGES		22-56-001	
SCALE		SHEET NO.	
1:125		5 OF 6	
ALTERNATIVE DRAWINGS		REVISION	
A3		P0	

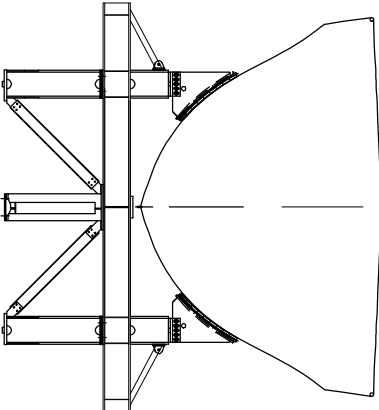
66 - 62 JINGRA STREET,
PORTSMOUTH, CAIRNS,
QLD, AUSTRALIA 4870
Ph: +61 (0)7 4036 1722
admin@norship.com.au
www.norship.com.au

Proprietary Information - Copyright. In compiling this document, Norship Marine relies upon information supplied by a number of external sources. This document is supplied on the basis that while Norship Marine believes all information supplied is correct at the time of publication, Norship does not warrant the accuracy or completeness of the information and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the reader, or by any other person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this document. Norship Pty Ltd, ACN 0710 565 549, ABN 60 0710 565 549, All rights reserved.

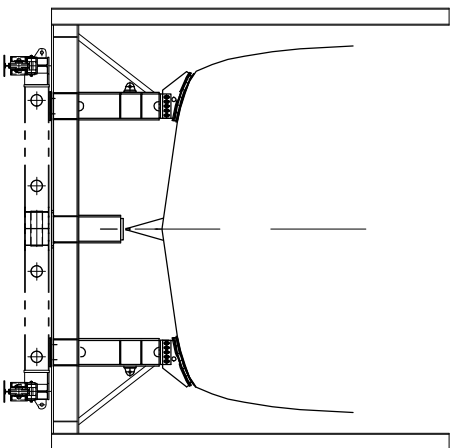
DO NOT SCALE



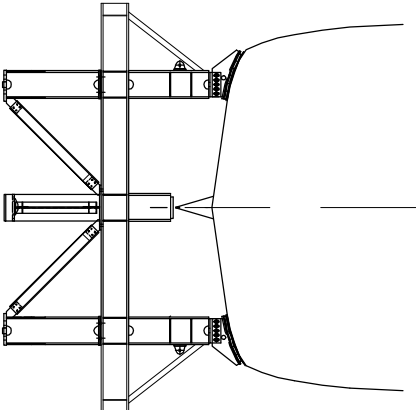
FR 29 INSTALLATION CRADLE ON SLIPPING CRADLE



FR 29 INSTALLATION CRADLE ON INSTALLATION STAND



FR 63 INSTALLATION CRADLE ON SLIPPING CRADLE



FR 63 INSTALLATION CRADLE ON INSTALLATION STAND

Norship

56 - 62 JINGRA STREET,
PORTSMOUTH, CAIRNS,
QLD, AUSTRALIA 4870
Ph: +61 (0)7 4035 1722
admin@norship.com.au
www.norship.com.au



PROJECT
HIMAS TOWNSVILLE DOCKING

TITLE

SLIPPING STAGES

SCALE 1:125

ALL DIMENSIONS
IN MILLIMETRES



A3

JOB NO. E00007

REF NO. -

DWG NO.

22-56-001

REVISION

P0

SHEET NO.

6 OF 6

Proprietary Information - Copyright. In compiling this document, Norship Marine relies upon information supplied by a number of external sources. This document is supplied on the basis that while Norship Marine believes all information supplied is correct at the time of publication, Norship does not warrant the accuracy or completeness of the information and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by the reader, or by any other person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this document. Norship Pty Ltd, ACN 010 565 549, ABN 60 010 565 549, All rights reserved.

1

2

3

4

5

6