Base Load Power Hub (BLPH)

BLPH – Load In Manual

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

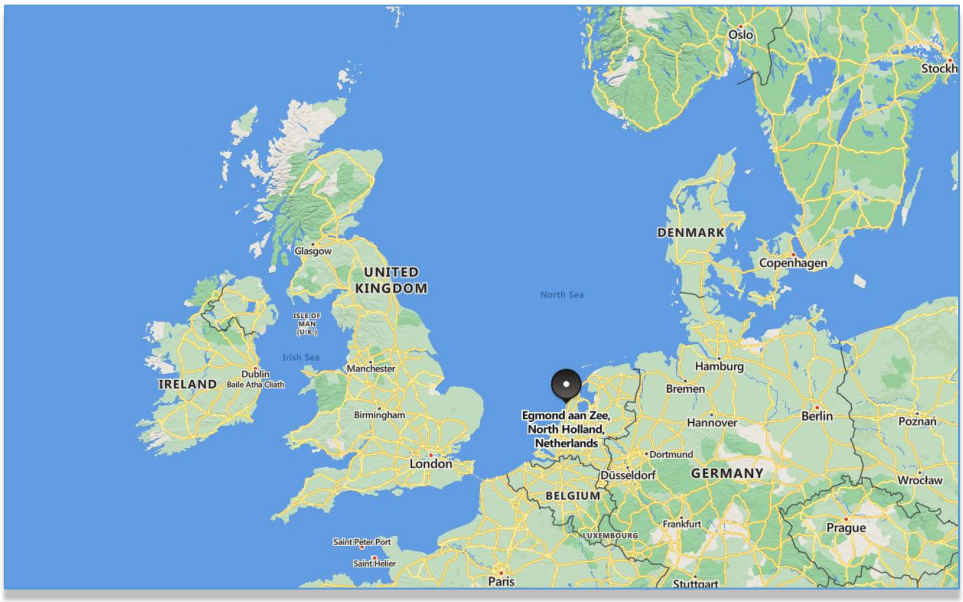


Figure 1.1 HOLLANDSE KUST NOORD WIND PARK Location Map

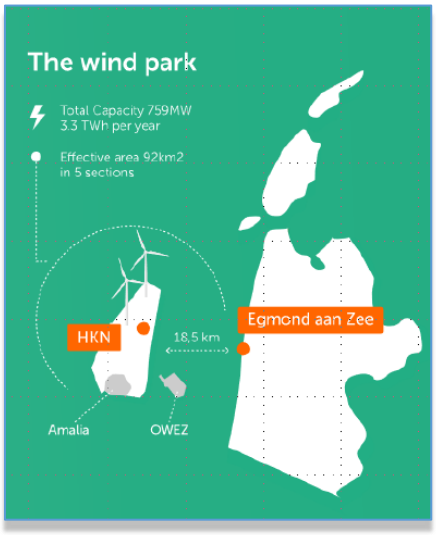


Figure 1.2 - Wind Park Details

The wind farm consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

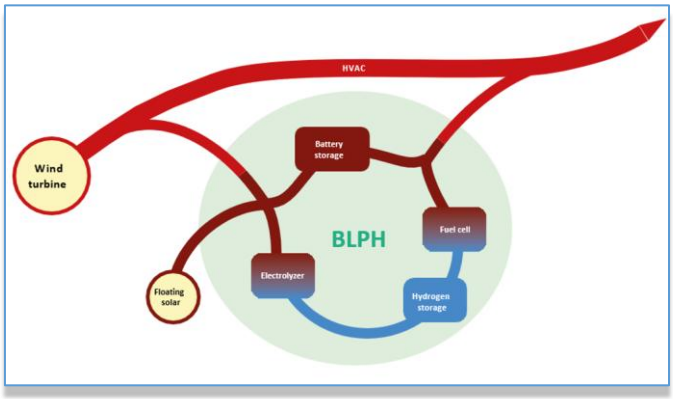


Figure 1.3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 SCOPE

2.1 PURPOSE

This document deals with the loadin procedure to be followed relevant to the CW BLPH topside, caisson frame and Transition piece.

The loadin operations have been scheduled for September 2025.

The document focuses on the main aspects of the activities: procedures, methods, responsibilities, safety criteria, site characteristics, mooring calculations and description of all the equipment's involved. A dedicated HIRA (Hazard Identification and Risk Assessment) has been held to ensure a correct evaluation of the risks together with all parties involved (Rosetti, CW, MWS, SARENS, BARGE owner).

This document, along with the associated documents, is intended to provide the procedure and guideline for the execution of the operations. The Loadin operation will be under the command of the Loadin Manager but, however, Loadin Manager may make amendments on site or exercise his best judgment, in consultation with the Marine Warranty Surveyor and Company representative, as the case may require, dealing with situations that may be encountered during the operation.

2.2 GENERAL

The site where the operation will take place is the Eemshaven Harbor located in north of Netherlands, quay Beatrixhaven.

BLPH Topside and TP, after seafastening removal, will be moved from the barge to the quay by means of suitable number of SPMTs positioned under the steel beams (BLPH) or upper grillage beams (TP); for details about Trailer configuration see Appendix "H".

Caisson frame (CF) instead will be lifted from cargo barge using quay positioned mobile craneand moved to the final position by means of reach racker, see Appendix "I".

Load-in of the TP will be performed moving the structure with 2 rows of SPMT positioned under the upper grillage beams from barge bow, for details about hydraulic configuration of SPMT and acting loads see Appendix "H". Load-in of the Topside will be performed moving the structure with 3 rows of SPMT positioned under the BLPH main beams from barge bow, for details about hydraulic configuration of SPMT and acting loads see Attachment "H".

During the movement of the structure from barge to the yard, the barge will be ballasted / deballasted to compensate for the weight and moment transferring to maintain the barge deck leveled with quay capping beam.

The whole operation shall be considered subdivided in several steps, corresponding to different positions of the SPMT compared to barge bow and tide level: for each step of the sequence the proper ballast plan shall be calculated so that the stern will be maintained at same level of capping beam, where the moving structure weight is considered as a set concentrated forces corresponding to the SPMT axle loads.

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3 REFERENCES

3.1 CODES AND STANDARDS

Doc. No.	Description
/1/ BS EN ISO 19900	General requirements for offshore structures - 2019
/2/ BS EN ISO 19901-1	Specific requirements for offshore structures - Part 1: Metocean design and operating considerations - 2015
/3/ BS EN ISO 19901-2	Seismic design procedures and criteria
/4/ BS EN ISO 19901-3	Specific requirements for offshore structures – Part 3: Topsides structure - 2014
/5/ BS EN ISO 19901-5	Specific requirements for offshore structures – Part 5: Weight Management - 2021
/6/ BS EN ISO 19901-6	Specific requirements for offshore structures – Part 6: Marine Operations – 2009
/7/ BS EN ISO 19902	Petroleum and natural gas industries - Fixed steel offshore structures – 2020
/8/ API RP 2A-WSD	Recommended practice for planning, designing and constructing fixed offshore platforms – Working stress design – 22nd edition – 2014
/9/ DNV-ST-N001	DNV - Marine operation and marine warranty - 2023
/10/ DNV-ST-0145	DNV, Offshore substations, 2021

3.2 COMPANY SPECIFICATIONS

Doc. No.	Description
/11/ DEP 37.19.00.12	Gen - Offshore Topsides Structures
/12/ DEP 37.19.00.30	Gen - Fixed Steel Offshore Structures (Adoption of IOGP S-631-11, Amendments / Supplements to ISO 19902:2020).
/13/ DEP 37.81.10.19	Gen - Marine Operations Requirements – Loadin, Transportation and Installation of Offshore Structures (Amendments / Supplements to ISO 19901-6)
/14/ DEP 37.91.10.11	Mobile Mooring Systems (Amendments / Supplements to API RP 2SK, API RP 2SM AND API RP 2I)

3.3 PROJECT DOCUMENTS

Doc. No.	Description
/15/ 123A90-DDL-MD-RE-01006	Monthly Weight Report
/16/ 123A90-DDL-ST-SP-90017	Structural Design Basis
/17/ 123A90-DDL-ST-SP-90018	Structural Material Specification for Topside & TP
/18/ 123A90-DDL-ST-SP-90118	Structural Material Specification for Flange & Bolts
/19/ 123A90-DDL-ST-TN-90119	Evaluating ISO and DNV approaches
/20/ 123A90-DDL-TI-SP-99014	Specification for TP, Topside and Caissons Transportation and Installation
/21/ 123A90-DDL-ST-RE-90001	Topside loadout analysis
/22/ 123A90-DDL-TI-RE-99001	Topside Gr&SF report
/23/ 123A90-DDL-TI-DD-99021	Topside – Grillage Assembly
/24/ 123A90-DDL-TI-DD-99023	Topside – Grillage – Plan and Section
/25/ 123A90-DDL-TI-RE-99012	Topside – Yard Checklist
/26/ 123A90-PML-QHSE-PRO-00127	Topside – internal seafastening report
/27/ 123A90-DDL-ST-RE-90008	TP loadout analysis
/28/ 123A90-DDL-TI-RE-99003	Technical note – validation of TP grillage and SF design on barge Vervece
/29/ 123A90-DDL-TI-RE-99004	TP Gr&SF report
/30/ 123A90-DDL-TI-DD-99036	TP – Upper Grillage plan view
/31/ 123A90-DDL-TI-DD-99037	TP upper grillage sections
/32/ 123A90-DDL-TI-DD-99038	TP upper grillage section and details
/33/ 123A90-DDL-TI-DD-99039	TP – Lower Grillage Assembly
/34/ 123A90-DDL-TI-DD-99040	TP – Lower Grillage – Plan and Section
/35/ 123A90-DDL-TI-RE-99013	TP & CF – Yard Checklist
/36/ 123A90-DDL-ST-RE-90014	CF loadout analysis
/37/ 123A90-DDL-TI-RE-99007	CF Gr&SF report
/38/ 123A90-DDL-TI-DD-99047	CF – Grillage Assembly
/39/ 123A90-DDL-TI-DD-99048	CF – grillage and SF
/40/ 123A90-FDL-MT-DD-00806	Load-in mooring plan

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3.4 SOFTWARE

Doc. No.	Description
/41/ MOSES	Hydrostatic and Hydrodynamic Analysis Software for Offshore Installation and Platform Design– BENTLEY Inc, v.12

4 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY)	Crosswind
CONTRACTOR (CTR)	ROSETTI MARINO S.p.A.
PROJECT	HOLLANDSE KUST NOORD WIND PARK Project
TRANSPORT CONTRACTOR	OCEAN
SPMT	SARENS
BESS	BATTERY ENERGY STORAGE SYSTEM
BG	Box Girder
BLPH	Base Load Power Hub
CF	Caisson Frame
CL	Concentrated Load
CoG	Centre of Gravity
CTV	Crew Transfer Vessel
CW	CrossWind
DAF	Dynamic Amplification Factor
DFF	Damage Fatigue Factors
DLB	Ductility Level Blast
DNV	Det Norske Veritas
DOP	Dropped Object Protection
El.	Elevation
EPCI	Engineering Procurement Construction and Installation
FEED	Front End Engineering Design
HAT	Highest Astronomical Tide
HKN	Hollandse Kust Noord
ICCP	Impressed Current Corrosion Protection
LAT	Lowest Astronomical Tide
LRFD	Load and Resistance Factor Design
MSL	Mean Sea Level
NTE	Not-to-Exceed
OD	Outside Diameter

PAU	Pre-Assembled Unit (H2 Vessels)
PBY	Piomboni Yard Ravenna
PG	Plate Girder
SCE	Safety Critical Equipment
SHL	Static Hook Load
T&I	Transport & Installation
ToS	Top of Steel
TP	Transition Piece
UC	Unity Check
UDL	Uniformly Distributed Load
VIV	Vortex Induced Vibration
VOOW	Van Oord Offshore Wind
WTG	Wind Turbine Generator
W2W	Walk to Work

Table 4.1 - Definitions and Abbreviations

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5 ITEMS DESCRIPTION

5.1 BLPH

The BLPH comprises of two main deck levels with overall deck plan dimensions of 40 m x 16 m, excluding external walkways, laydown areas and stairs, with an overall deck height of 7 m between decks. There are currently 6 hydrogen storage vessels which lie horizontally, aligned North - South, within the PAU structure located above the upper deck.

The Topsides layout is shown in Figure 5.1.

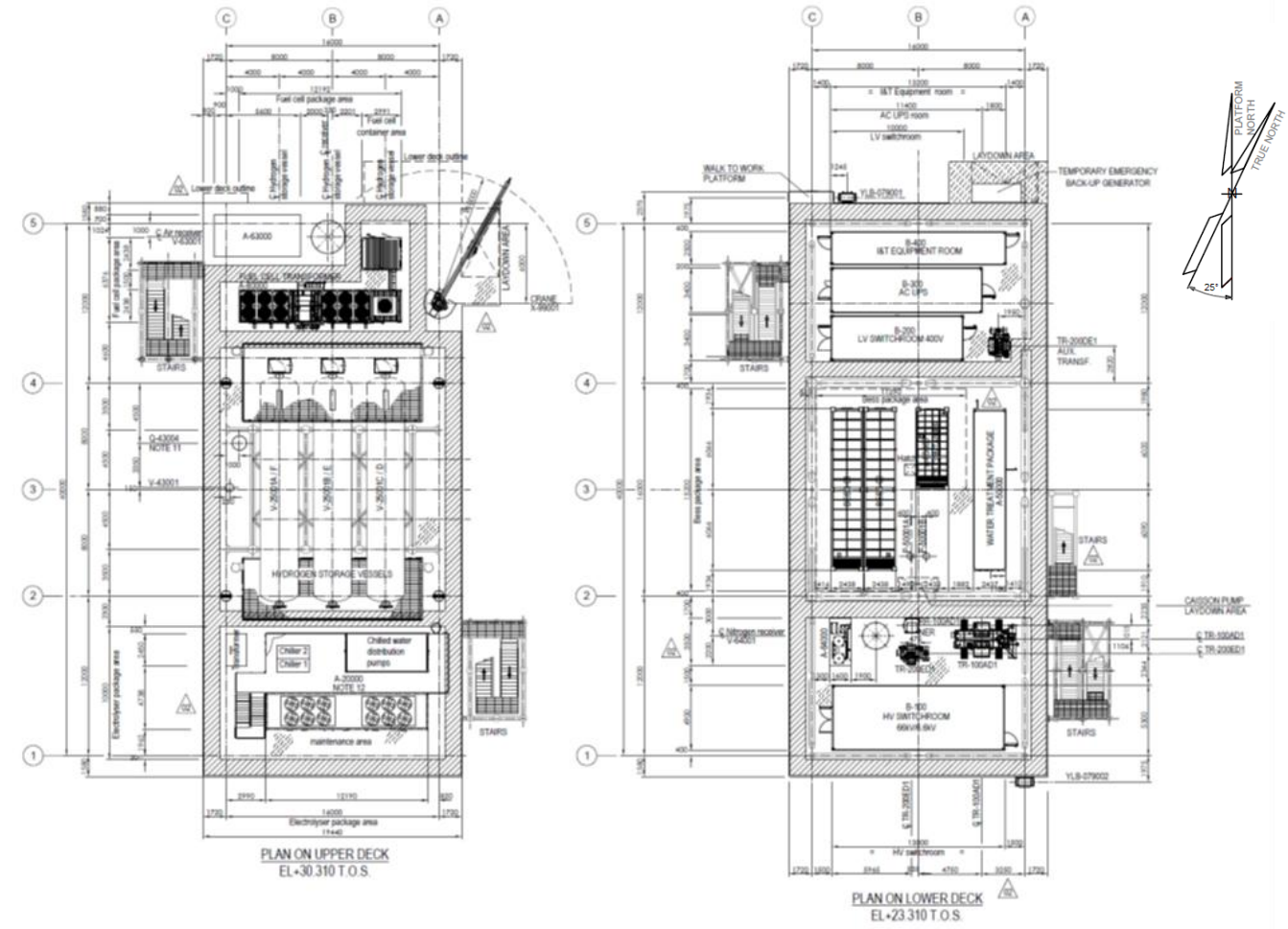


Figure 5.1 - Base Load Power Hub Plot Plan

5.1.1 COG position

According to the last issued physical weighing operation carried out at Rosetti Marino Yard, Topside has the following CoG and weight position (from A1 and LAT) relevant to loadin condition:

- Loadin Weight 1646 ton (excluding SPMT and spacer weight);
- X_G = 19.87 m;
- Y_G = 7.87m;

BLPH loadin scheme with CoG position is shown in the next figure. Refer to Appendix N for details about the load application.

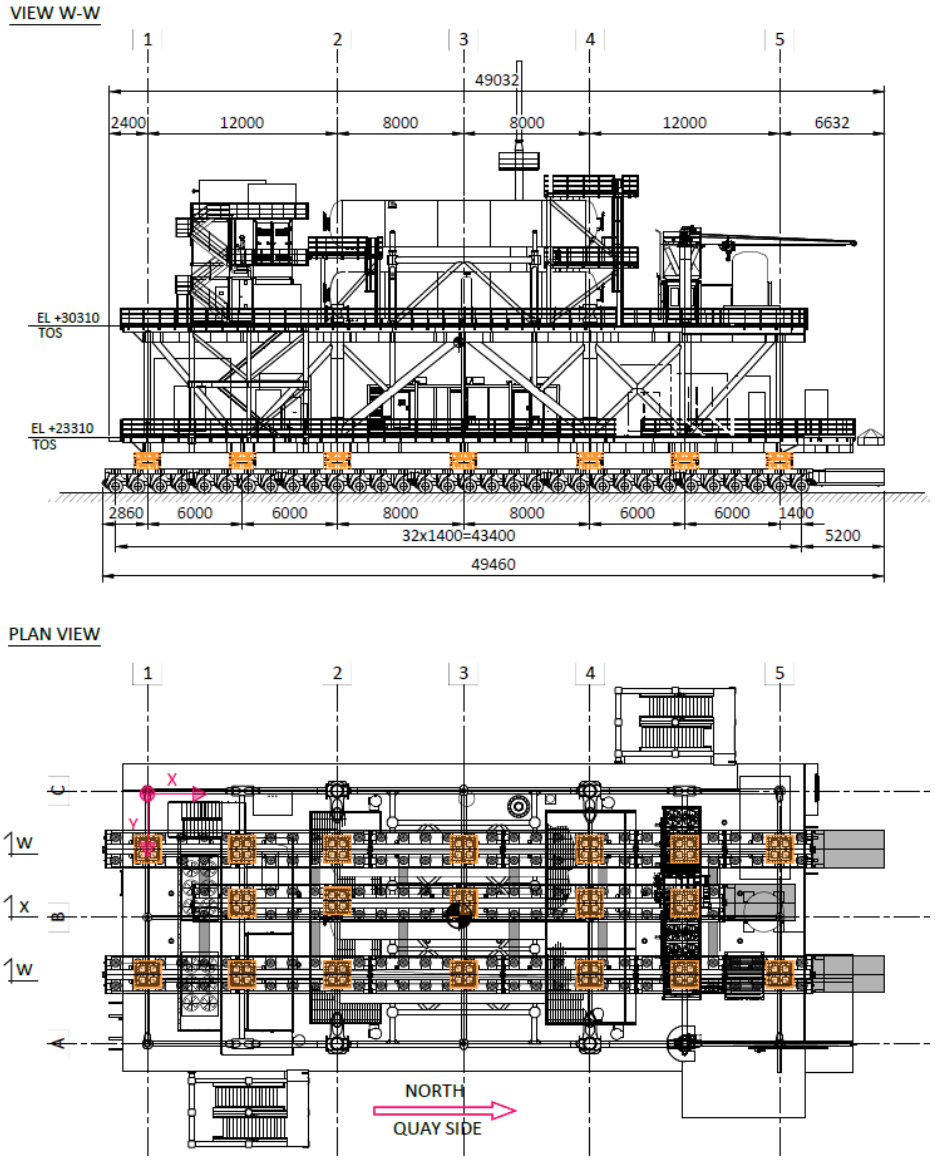


Figure 5.2 – BLPH SPMTs arrangement

5.2 TRANSITION PIECE

The connection of Topside with Monopile is realized through a Transition Piece (TP) structure. TP is composed by a central column with an outer diameter of 7m and Four (4) boxed girders with height ranging from 2.5 m to 1.4 m, oriented along the main diagonals of the TP.

TP main dimensions are 16m x 16m with height 7.9m.

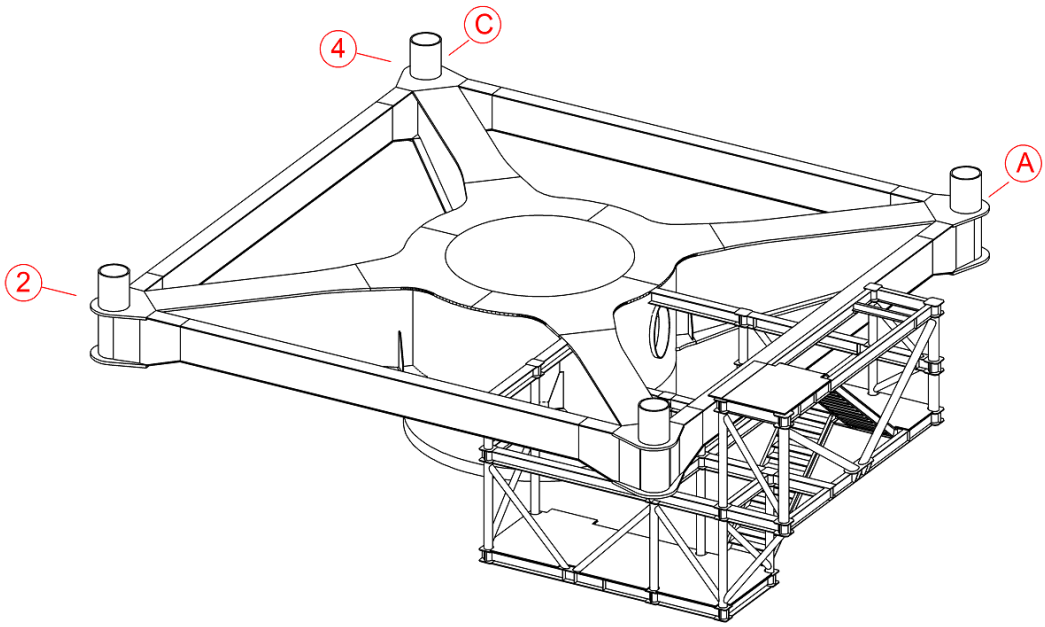


Figure 5.3 – Transition Piece – 3D

5.2.1 COG Position

According to the last issued physical weighing operation carried out at Rosetti Marino Yard, TP has the following CoG and weight position (from A1 and LAT) relevant to loadin condition:

- Loadin weight 247 ton (excluding SPMT weight);
- X_G = 19.663 m;
- Y_G = 8.774 m;

TP loadin scheme with CoG position is shown in the next figure.

5.3 CAISSON FRAME

The caisson frame is designed to structurally connect n.2 seawater lift caissons and n.1 brine discharge caisson to the Monopile CW70.

The support concept is that the CF form a structure similar to the boat landing frame, which has been successfully installed by Van Oord on monopile.

The brine caisson is "piggy-backed" off the CF. it is positioned on the outside of the CF and terminates 6m above the inlet to the seawater lift pump caissons. This to avoid, as far as possible, cross-contamination of waste brine water being dumped overboard with fresh seawater drawn for electrolysis.

The seawater lift caissons contain submersible pumps, so the caissons must be vertical.

5.3.1 COG Position

CoG position is taken from ref. /15/, and compared with TEKLA model:

- Loadout Expected Weight 32.5 ton (16% cont. included)

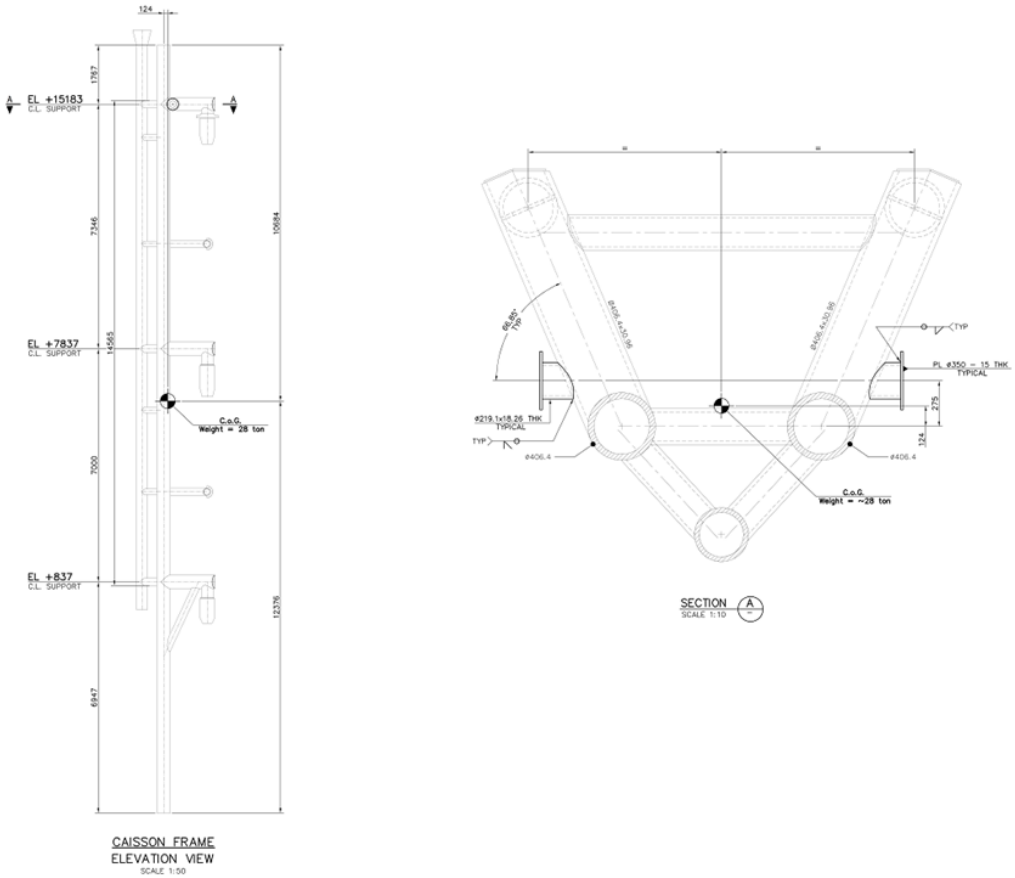


Figure 5.4 – CF COG position

6 SITE MAIN DATA

6.1 YARD GENERAL DATA

The area dedicated loadin activities is located in the North side of Eemshaven Harbour (Buss Terminal) and the waterfront overlooks an internal harbour area, the storage area is located.

The location is free from the influence of waves and currents and the main variations in terms of water level are only dependent on tide variation.

The elevation of quay capping beam above N.A.T. is 4,5 m, tide tables relevant to Harbor (see Appendix "M" for details) show that maximum water level excursion is less than +/- 1,6 m around N.A.T.

The following Picture shows the location:

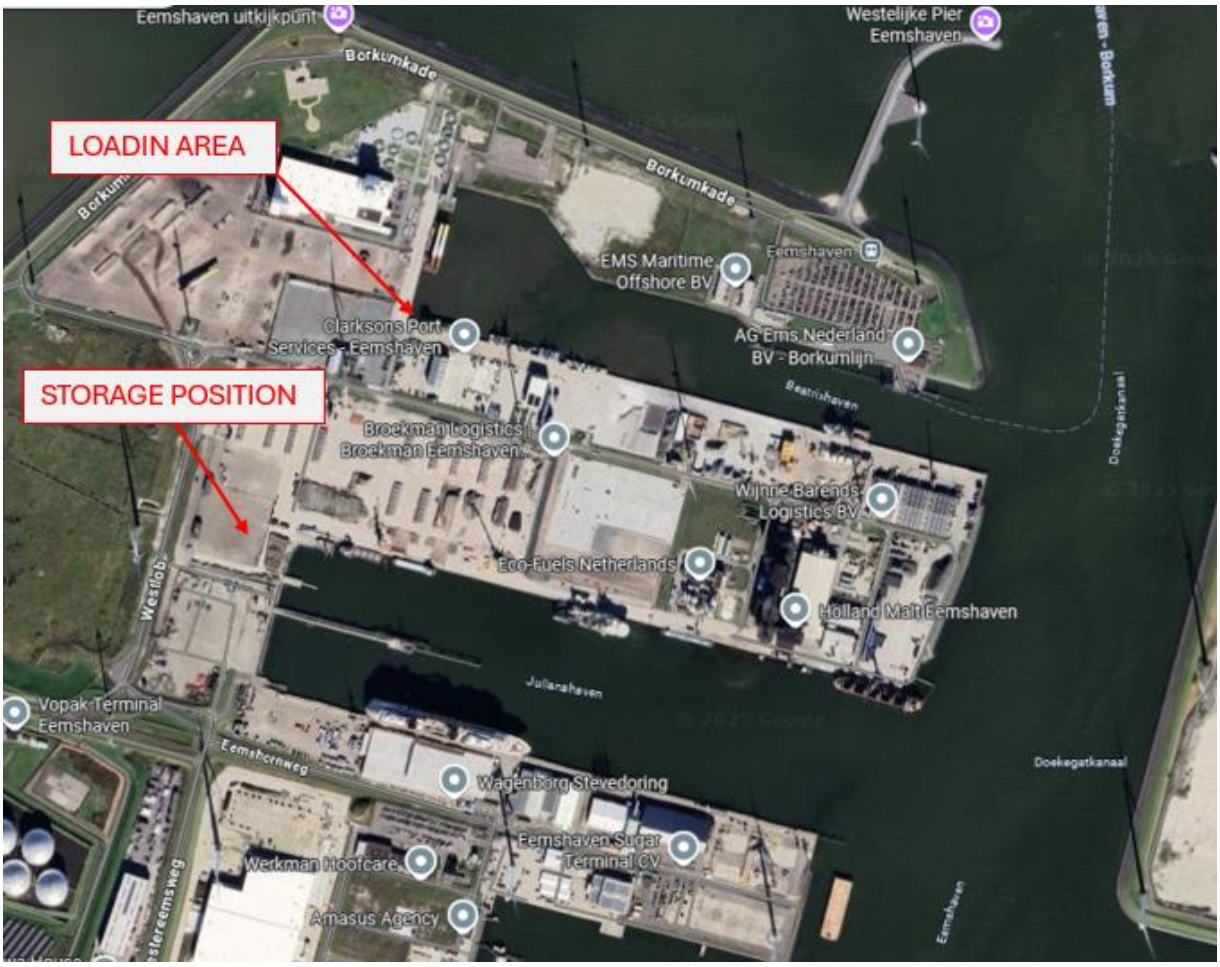


Figure 6.1 – Eemshaven port and BUSS Location

6.2 YARD BOLLARDS LOCATION AND DETAILS

Bollards position along quayside is shown in Appendix "D", bollard capacity is 600 kN.

6.3 HYDROGRAPHICAL SURVEY AND TIDE DATA

The elevation of quay capping beam above N.A.T. is 4,5 m, tide tables relevant to Harbor (see Appendix "M" for details) show that maximum water level excursion is less than +/-1,6 m around N.A.T.

At the quay side the minimum water depth is 10 m (N.A.T. reference), see Appendix "D".

6.4 UNDER KEEL CLEARANCE

The maximum draft of barge will be 3,3 m (stern draft at barge arrival) therefore the minimum under keel clearance will be 10 – 3,3 – 1,5 = 5,2 m considering the low tide condition.

This under keel clearance is widely over 1 m that is the minimum required as per DNV rules.

6.5 WEATHER FORECASTING ARRANGMENT FOR THE YARD

Weather forecast for load out operation will be obtained from website www.windy.com and www.windfinder.com, during the week prior loadin operation weather forecast will be checked.

7 ENVIRONMENTAL LIMITS

7.1 TIDE

See section 6.3. max excursion +1,6 m/-1,6 m considered.

7.2 WAVE

Not present being in a closed basin. Marine traffic will be limited and wind wave negligible having limitation on max wind speed.

7.3 WIND

The loadin activities will be performed with good weather conditions and favorable weather forecast. The maximum wind speed should not exceed 15 m/s during loadin. Prior to starting the load in the wind speed will be checked by means of an anemometer (hand anemometer available on roof of BUSS office).

The maximum wind speed assumed for mooring design is:

- 27 m/s (10 min. mean, 10m high) for long term mooring, this value is the reference wind for 50 years return period storm according to available site data; it is conservative approach since EN and DNV rules suggest 10 years return period storm.
- 15 m/s for mooring during load out (15 min at 10m high)

DNV rules suggest the use of 15 sec averaging time for quay mooring of small vessel / objects

Guidance note 1:
The following averaging times are given as examples;

- Fixed structures L < 50 m	3	[s]
- Fixed structures L > 50 m	15	[s]
- For any structure if wave load dominating	1	[minute]
- Quay mooring, small vessels/objects	15	[s]
- Quay mooring, large (Wind area > 2000 m^2) vessels/objects	1	[minute]
- Stability calculations, normally	1	[minute]
- Catenary mooring of vessels/objects	10	[minutes]
- Catenary mooring of GBS	60	[minutes]

Figure 7.1 – DNV Table 3-1

Factor 1.17 is applied to wind speed according to DNV, due to the conversion from 10-min to 15sec gust.

Table 3-3 Wind profile, $U(z, t_{mean})/ U(z_r, t_{r, mean})$

z (m)	Averaging time				
	3 s	15 s	1 min.	10 min.	1 hour
1	0.93	0.86	0.79	0.69	0.60
5	1.15	1.08	1.01	0.91	0.82
10	1.25	1.17	1.11	1.00	0.92

Figure 7.2 – DNV Table 3-1

For the purpose of the load in operation 15m/s is used for SPMT stability, considering that barge remains moored with the same scheme, the calculation valid for long-term is applicable for load in operation.

For details relevant to Mooring Design see Chapter 8 and Attachment G for calculation.

8 MOORING SYSTEM

The mooring system consists of the following items:

- Polypropylene Mooring Lines;
- Connection Devices (link plate, tackles, shackles …)
- Yard winches

The scope of mooring is to secure the Cargo Barge to Quay during loadin and long term mooring for preparatory activities. The mooring analysis has been performed considering the barge moored by PS.

8.1 WINCHES MAIN FEATURES

N.4 winches will be placed on quay and be employed to stretch mooring ropes. Each winch will be 20t capacity in pulling and 50t capacity in brake.

8.2 WIND EXPOSED AREAS

An analysis relevant to wind exposed areas is necessary in order to evaluate the acting loads on mooring lines due to wind pressure applied on barge, loaded out items and Grillage.

8.2.1 Lateral View

The following picture shows the Lateral Exposed areas for the main items relevant to loadin condition and post loadin condition.

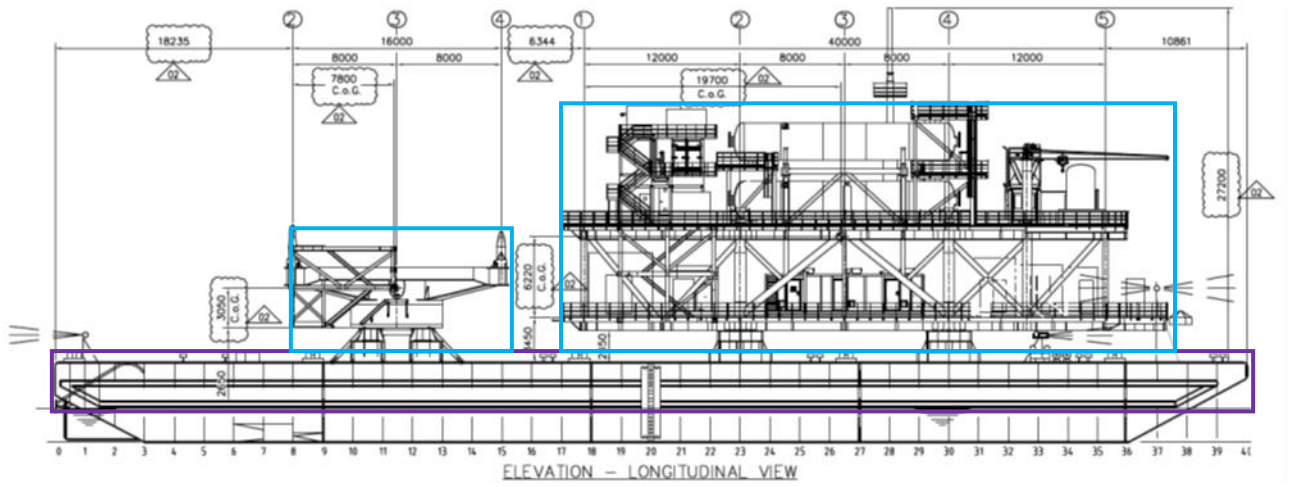


Figure 8.1 – Wind Lateral Exposed Area

The following list summarizes the main data relevant to Exposed Areas shown above:

- Cargo Barge (Violet): Exposed area equal to 190 m2 (considering min draft condition) with a Center of Exposed Area located at midship;

- TP, Topside & Grillages (Blue): BLPH Exposed Area equal to 662 m2 with a Center of Exposed Area located at 30.9 m from Barge bow, TP Exposed Area equal to 100 m2 with a Center of Exposed Area located at 66.4m from Barge bow, CF covered by the above numbers.

Total side windage area = 190+762 m2

8.2.2 Front View

The following picture shows the Exposed areas for the main items relevant to loadin condition and post loadin condition:

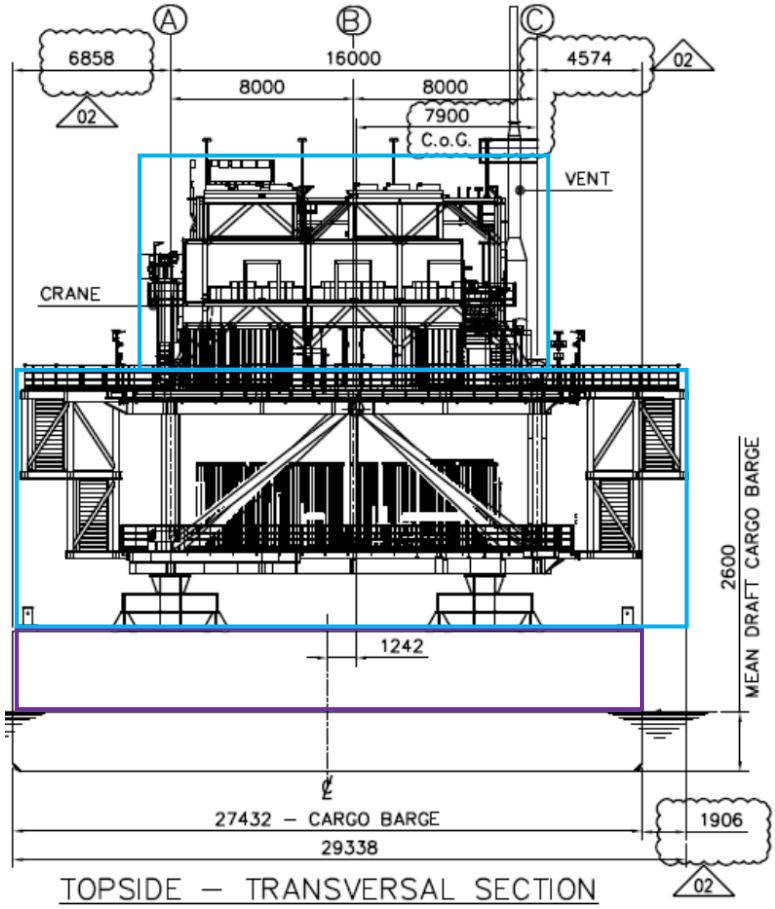


Figure 8.2 - Wind Front Exposed Area

The following list summarizes the main data relevant to Exposed Areas considered for this condition:

- Cargo barge (Violet): Exposed area equal to 80 m2 (considering min draft) with a Center of Exposed Area located on Barge Centre Line;

- Topside (Blue): Exposed Area equal to 340 m2 with a Center of Exposed Area located on Barge Centre Line;

Total front windage area = 80+340 m2

See attachment G for mooring analysis.

9 LOADIN PROCEDURE

9.1 GENERAL

The basic principles of the operation consist of moving the items by means of SPMT until the edge of the ramp is reached, then, after a first set of proper alignment check and compliance of values of tide and water into the ballast tanks, the items will be moved on quay.

- Topside Row 5 will be the first to be transferred to the quay and the structure weight will be transferred to yard by SPMT tires. Three ramps (one for each SMPT line) will be provided to ensure the connection between yard capping beam and barge bow, for details and structural checks of these bridge plates see Appendix H.
- TP Row 2 will be the first to be transferred to the quay and the structure weight will be transferred to yard by SPMT tires. Two ramps (one for each SMPT line) will be provided to ensure the connection between yard capping beam and barge stern, for details and structural checks of these bridge plates see Appendix H.
- CF will be loaded in by crane, temporarily landed on quay and then moved to its final destination by reach stacker.

The transportation barge VERVECE will be ballasted / deballasted to compensate for the load transferred by the SPMT and during the progress of the load-in a monitoring system will be adopted to monitor the barge trim and roll.

During items load in, barge will be moored with bow at quay side; yard capping beam and barge deck will be kept at the same level during all loadin phases, however little vertical barge movements are allowed considering the arrangement of ramp system.

For ramp details see Appendix H.

During operations, a system of fenders will be arranged to keep unchanged the distance between barge and quay, their details are in Appendix E.

9.2 MAIN LOADIN TIMELINE

The following table summarizes the main steps necessary to carry out the items Loadin:

1.	Quay preparation	Appendix E
2.	Barge moored by bow (fenders / winches / mooring lines)	Appendix E
3.	SPMT and ramp positioning for Topside loadin	Appendix H
4.	Topside SF and internal gusset plates of Row C removal to allow loadin	Appendix Q
5.	Perform ballast plan as per phase 0 of Topside ballast plan	Appendix O

6.	Start Topside ballasting operation	Appendix O
7.	Topside Complete loadin operation and movement to storage Area	Appendix B
8.	Topside Lowering on yard supports	Appendix B
9.	Shimming and survey	Appendix R
10.	SPMT and ramp positioning for TP loadin	Appendix H
11.	TP SF removal and Lower grillage to UG disconnection to allow loadin	Appendix Q
12.	Perform ballast plan as per phase 0 of TP ballast plan	Appendix O
13.	Start TP ballasting operation	Appendix O
14.	TP Complete loadin operation and movement to storage Area	Appendix B
15.	TP Lowering on yard supports	Appendix B
16.	Shimming and survey	Appendix R
17.	CF loadin by means of lifting by crane	Appendix I
18.	CF transferred to yard location by reach stacker	Appendix I

9.3 ITEMS, QUAY AND BARGE PREPARATION

After the barge arrival, the items will be checked in terms of integrity and no loose items considered critical for load in operation will be properly secured.

9.3.1 TOPSIDE

All the activities listed below will be carried out prior to the loadin:

1. Removal of scaffolding and items not necessary for the loadin;
2. Check that no loose items will be on the item during the activity;
3. Removal of SF and inner gusset plates Row C
4. Check that no clashes will occur between item and quay site facilities and no obstacles will be present along the route;
5. Check the SPMT arrangement;
6. Loading operation shall not commence until MWS CoA has been issued.

9.3.2 TP

All the activities listed below will be carried out prior to the loadin:

1. Removal of scaffolding and items not necessary for the loadin;

2. Check that no loose items will be on the item during the activity;
3. Removal of 4-SF pipes and cutting of UG to LG connection
4. Check that no clashes will occur between item and quay site facilities and no obstacles will be present along the route;
5. Check the SPMT arrangement;
6. Loading operation shall not commence until MWS CoA has been issued.

9.3.3 CF

All the activities listed below will be carried out prior to the loadin:

7. Removal of scaffolding and items not necessary for the loadin;
8. Check that no loose items will be on the item during the activity;
9. Removal of SF (wooden stopper plates)
10. Check the Crane configuration;
11. Check the slings arrangement;
12. Loading operation shall not commence until MWS CoA has been issued.

9.3.4 Quay side

Activities required before the loadin listed as follows:

1. Clean off all material and equipment not strictly required for the loadin;
2. Check that no sharp objects will be present along SPMT route;
3. Check that no obstacles will be present between the fenders and the barge;
4. Perform safety inspection;
5. Cordon off the area involved for the operation;
6. Disposal of all the mooring equipment close to the designated bollards and check of compliance of the equipment itself;
7. Check and preparation of bollards and anchor points on-shore;
8. Arrangement of all reference points necessary for the barge level monitoring during the loadin (an optical level and stadia system will be employed for the scope).

9.3.5 Barge Preparation

List of activities to be carried out before starting the loadin:

1. Check all barge appurtenances have been removed/installed (if any);

2. Check of the ballast system arrangement and perform function test of ballast system prior to load in operation;
3. Check arrangement of ramps, welding of hinges on deck;
4. Check that no clashes will occur between topside/TP and barge appurtenances and / or grillages, if any remove;
5. Check if deck manholes are accessible for the using of ballasting portable pumps (ullage level will be monitored through open man holes);
6. Preparation of seafastening cutting tools.
7. Painting of the SPMTs path on the barge deck.

9.3.6 Personnel preparation

List of activities to be carried out before starting the loadin:

1. Tool box with all personnel involved into loadin operation (as per loadin organization chart) carried out;
2. Check radio communications (walkie-talkie and spare batteries tested);
3. Check first aids availability;
4. Check harbor authority has been informed of imminent start of loadin operation (Loadin Manager responsible for communication with Harbor Authority).

9.3.7 Fenders

During loadin operation the following fenders will be employed:

- Four Yokohama fenders on Portside

The fenders have a diameter equal to 3 m, see Appendix E for details.

9.3.8 Bridge Plates

During loadin operation the following ramps will be employed:

- Two ramps for TP loadin. Each rump is 1m wide, hence 3 ramp for each SPMT will be employed
- Three ramps for Topside loadin. Each rump is 1m wide, hence 3 ramp for each SPMT will be employed

The ramps are provided by Sarens and they are designed for SPMT , see Appendix H for details.

9.4 BALLAST SYSTEM

Ballasting sequence is included in Appendix "O".

The ballasting system consists of a set of submersible pumps provided by Sarens .

Loadin ballast sequence considers max 4 tanks contemporaneously manoeuvred at each of loadin phase.

Load in in considered Class 1 due to tidal restriction according to Table 10-1 of DNV-ST-N001 code. The load in will take place in falling tide with the speed of SPMTs driving off the barge (decreasing the weight on the barge and decreasing the draft of the barge). See Appendix O for ballast system calculation.

The details relevant to pumps characteristics and general layout has been included in Appendix "N".

According DNV-ST-N001.

Table 10-1 Load-out (operation) class

Tide range [1]	*Tide restricted?* [2]	*Weather restricted?* [3]	*Load-out Class*
Significant	Yes	No/Yes	1
Significant	No	Yes	2
Significant	No	No	3
Zero	No	Yes	4
Zero	No	No	5

Notes:

1) If ballasting is required in order to compensate for tide variation, then the tide range shall be defined as significant, see also [10.2.1.2] and [10.2.1.3].
2) If the ballast system cannot compensate for a complete tide cycle, then the load-out shall be defined as tide restricted.
3) If weather restrictions apply, then the load-out shall be categorized as weather restricted, see [2.6]. If there are **no** weather restrictions to the object movement/ballasting phase the load-out class may be selected accordingly.

10 LOADIN ORGANIZATION

10.1 ROLES AND RESPONSIBILITY

A description of the functions and responsibilities of the key personnel involved in the operation is given here below:

- *Loadin Manager* is responsible for the whole loadin operations. Client, Company and Marine Warranty surveyor representatives liaise only and directly with Loadin Manager. Loadin Manager is also responsible for external parties interface / communication (harbor tugs, port authority and emergency services).
- *Ballast Engineer* is responsible for the operations of the primary ballast system and eventually for the emergency systems, in accordance with the loadin procedure and the instructions of the loadin manager.
- *Mooring System Superintendent* is responsible for mooring the barge onto the quay and for adjusting the barge alignment throughout the load out operation.
- *Surveyors Superintendent* is responsible for the co-ordination of the surveyor teams who check the barge level and alignment during the operation.
- *Intervention Team Superintendent* is responsible for the intervention team equipped with cranes, welding machines, cutting gear etc. which will be ready to intervene throughout the operation.
- *HSE Manager* is responsible for all the aspects related to safety including control of access within the restricted area and the liaison with the first aid team.
- *SPMT Superintendent* is responsible for all the aspects related to correct preparation and execution of transport operation by means of self-propelled modular trailer.
- *CPY Representative* is responsible for interface with Rosetti project team, loadin manager and Marine Surveyor.
- *ABL Marine Surveyor* Issue Certificate of Approval to start the loadin. (A signed copy must be handed to CPY Site Rep prior to topside liftoff). Witness loadin operation. Interface with CPY and Rosetti as required.
- *Project Quality Manager* is responsible for providing all documentation and certification required by MWS and to ensure checklists are completed and signed off.
- *Construction Manager*, in collaboration with Loadin Manager is the responsible all barge / quay activities (bollard removal, double plate positioning, lower grillage cutting…) necessary to perform loadin.

- *Tide Surveyor* is responsible for checking the tide variations during loadin operation, he will inform Loadin Manager about tide behavior by radio.

10.1.1 Contact details of key personnel

Here are the following contact details of key personnel:

- *Massimiliano Brunelli – RM Project Manager;*
  mobile: +393346143049
  e-mail: massimiliano.brunelli@rosetti.it
- *Alessandro Balzarotti – RM Project Structural Engineer ;*
  mobile: *+393451449272*
  e-mail: alessandro.balzarotti@teconsrl.it
- *Daniele Ricci Picciloni –RM Project HSE Manager;*
  mobile: *+393351225148*
  e-mail: *daniele.riccipicciloni@rosetti.it*
- *Mart Van Hoorn –SARENS Project manager*
  mobile: *+31620132530*
  e-mail: *Mart.vanHoorn@sarens.com*
- *- SARENS Loadin Manager;*
  mobile:
  e-mail:
- *Hamish Forsythe - ABL Marine Warranty Surveyor;*
  phone: *+447827 186314*
  e-mail: *hamish.forsythe@abl-group.com*

10.2 COMMUNICATIONS

The Loadin Manager has overall responsibility and control of the operation. The Loadin Manager communicates with the Loadin team via walkie-talkie and is the only one entitled to give orders.

The Loadin Team is in constant communication with the Loadin Manager and follows his instructions. In case of any mismatch with expected data and conditions, each Loadin Team component must inform immediately the Load out Manager, who is the only entitled to decide relevant intervention.

In case of immediate danger to the Health and Safety of any operator each Loadin Team component must STOP the operation immediately and then inform the Loadin Manager.

In any case, the Loadin Manager is the only one entitled to restart the operation.

Communication among the load-out key personnel will be made via portable radio. Load-in Manager will be linked to the surveyor superintendent in charge of monitoring the barge draft, trim and heel. The tank sounding will be read in by measuring the ullage through the manholes.

Prior to starting the operations the correct functionality of the walkie-talkies (batteries, radio frequency...) will be checked. Each walkie-talkie will be provided with a spare battery ready in case of substitution. A dedicated RF Channel will be employed for loadin operation.

A toolbox talk will be carried out before the load in commences. All personnel involved in the loadin, as per the Operational Organizational Chart, should be present so that everybody understands the operation and is aware of their responsibilities.

All communications will be conducted in English.

In the event of the operation being stopped for unforeseen circumstances, as described in this section, the Loadin Manager will inform CPY and the MWS of the nature of the problem and the proposed corrective course of action.

10.3 HSE REQUIREMENTS

For general Safety Measures refer to Project HSE Plan applicable revision and Risk Assessment.

A dedicated HIRA has been held to ensure a correct risk assessment.

10.4 CONTINGENCY PROCEDURE

The following table summarizes the main risks and relative actions.

RISK	INTERVENTION	TIME (min.)
Mooring line failure	- line reinstatement or substitution and back-up pre laid line in action	10-20′
Primary ballasting system failure	- spare Portable Pumps	10-15′
SPMT failure	Spare PPU / spare SPMT	
Clashes removing Requirement	Scaffold items and cutting/burning gear on standby at location on barge	

Table 10.1 –contingency plan

ATTACHMENT A – TP & BLPH GENERAL ARRANGEMENT ON VERVECE

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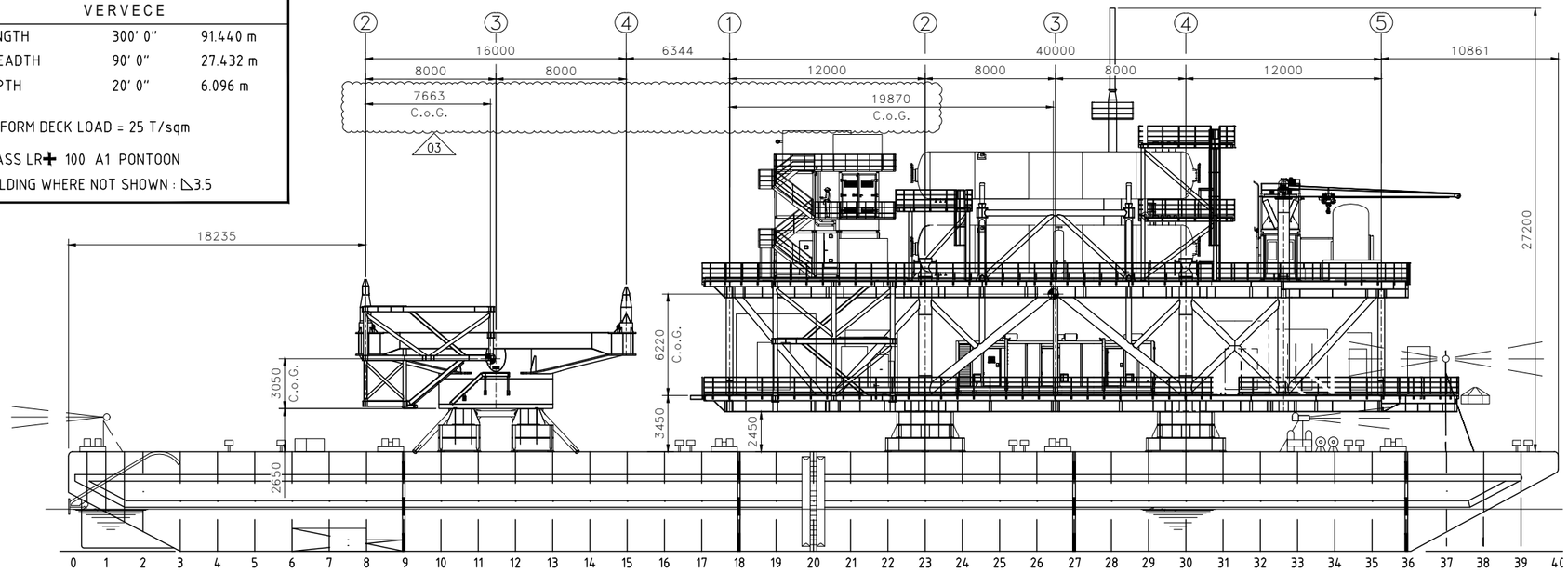
REV. 03

VERVECE		
LENGTH	300' 0"	91.440 m
BREADTH	90' 0"	27.432 m
DEPTH	20' 0"	6.096 m

UNIFORM DECK LOAD = 25 T/sqm

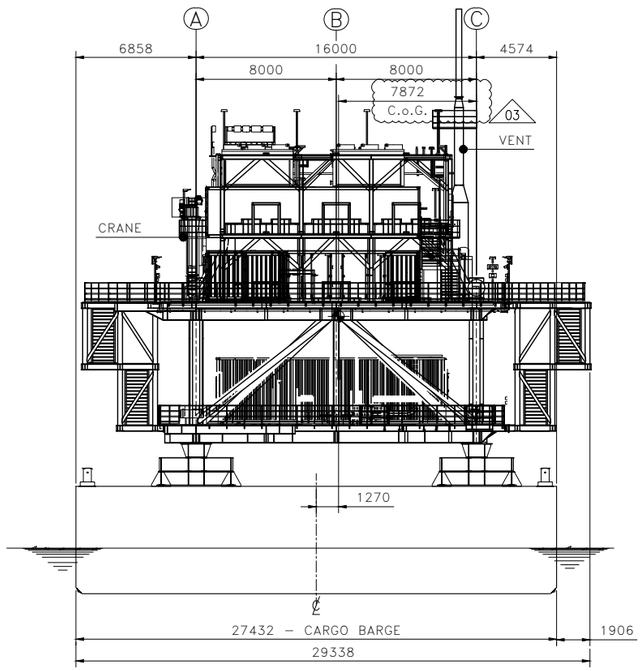
CLASS LR✚ 100 A1 PONTOON

WELDING WHERE NOT SHOWN : ◺3.5



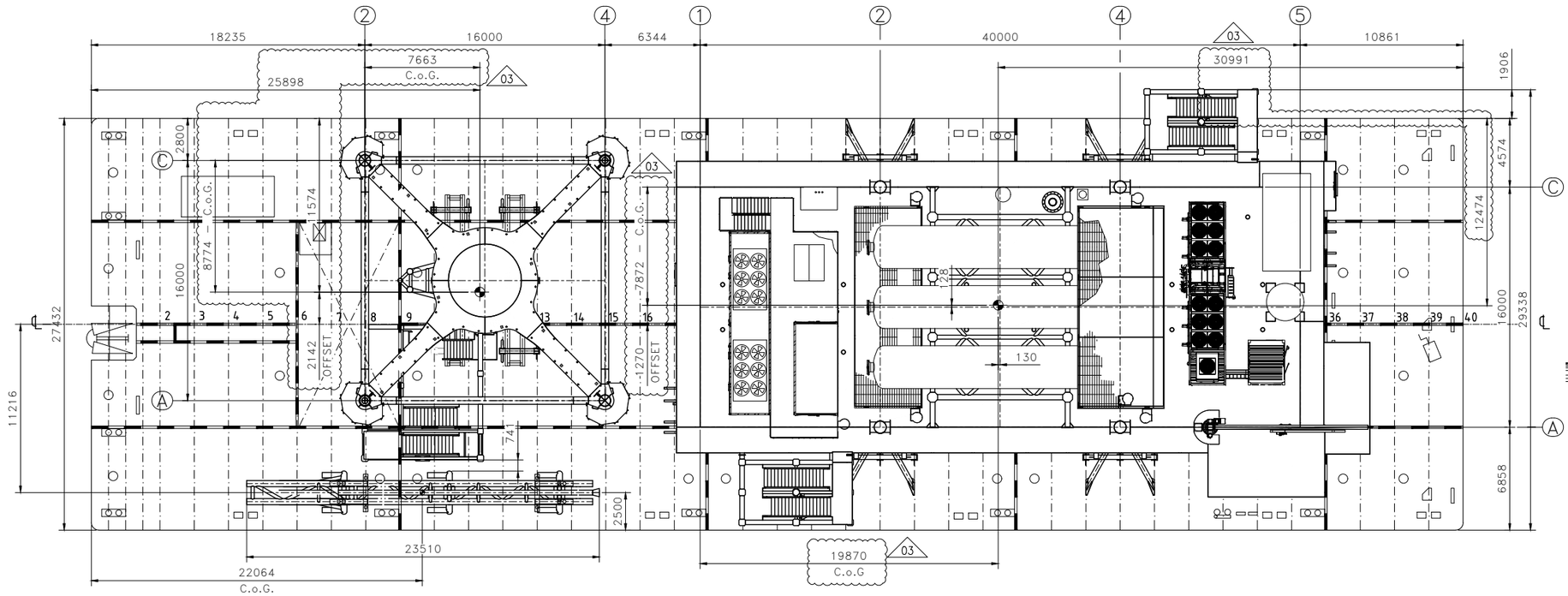
ELEVATION – LONGITUDINAL VIEW

SCALE 1:175



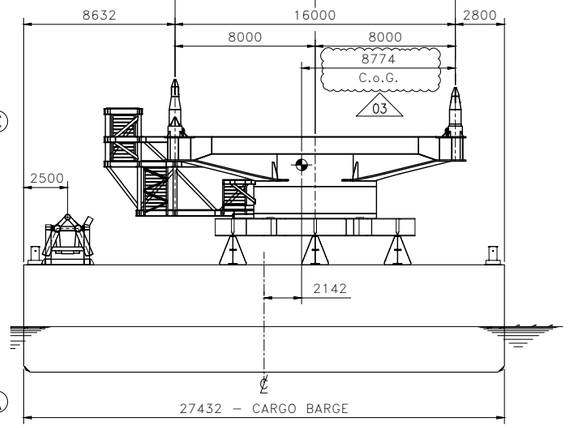
TOPSIDE – TRANSVERSAL SECTION

SCALE 1:175



BARGE LAYOUT – VERVECE

SCALE 1:175



TP – TRANSVERSAL SECTION

SCALE 1:175

NOTES
1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.

WEIGHT LIST		
TOPSIDE	= 1700 t	(3% CONTINGENCY INCLUDED)
TP	= 254.5 t	(3% CONTINGENCY INCLUDED)
TOPSIDE L.GRILLAGE & SF	= 75 t	
TP L.GRILLAGE & SF	= 45 t	
CAISSON FRAME	= 30 t	(10% CONTINGENCY INCLUDED)
CAISSON GRILLAGE & SF	= 0.5 t	

03

VERVECE - BALLAST PLAN for TOWING - Draft 2.50 bow - 3.30m stern - trim 0.50deg

STERN					BOW
	5PW	84% 4PW u=1.0m	3PW	2PW	1PW
	98% 5PC full	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	80.0% 5SW u=1.10m	4SW	3SW	61% 2SW u=2.40m	1SW

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
03	21/07/25	SGR	AB	DLS	ACCEPTED FOR CONSTRUCTION (AFC)
02	26/02/25	SGR	AB	DLS	ACCEPTED FOR CONSTRUCTION (AFC)
01	07/10/24	SGR	AB	DLS	ACCEPTED FOR CONSTRUCTION (AFC)
00	12/01/24	SGR	AB	DLS	ISSUE FOR REVIEW (IFR)

TECON

CROSSWIND

ROSETTI MARINO

TITLE : BASE LOAD POWER HUB (BLPH)
BARGE LAYOUT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:175
DRAWN S.GRIFFINI	CHECKED A.BALZAROTTI	APPROVED D.LO STERZO	DATE 21/07/25
A1	DRAWING NO. 123A90-DDL-TI-DD-99015	SHEET 001	REV. 03

File Name : 123A90-DDL-TI-DD-99015_03.dwg

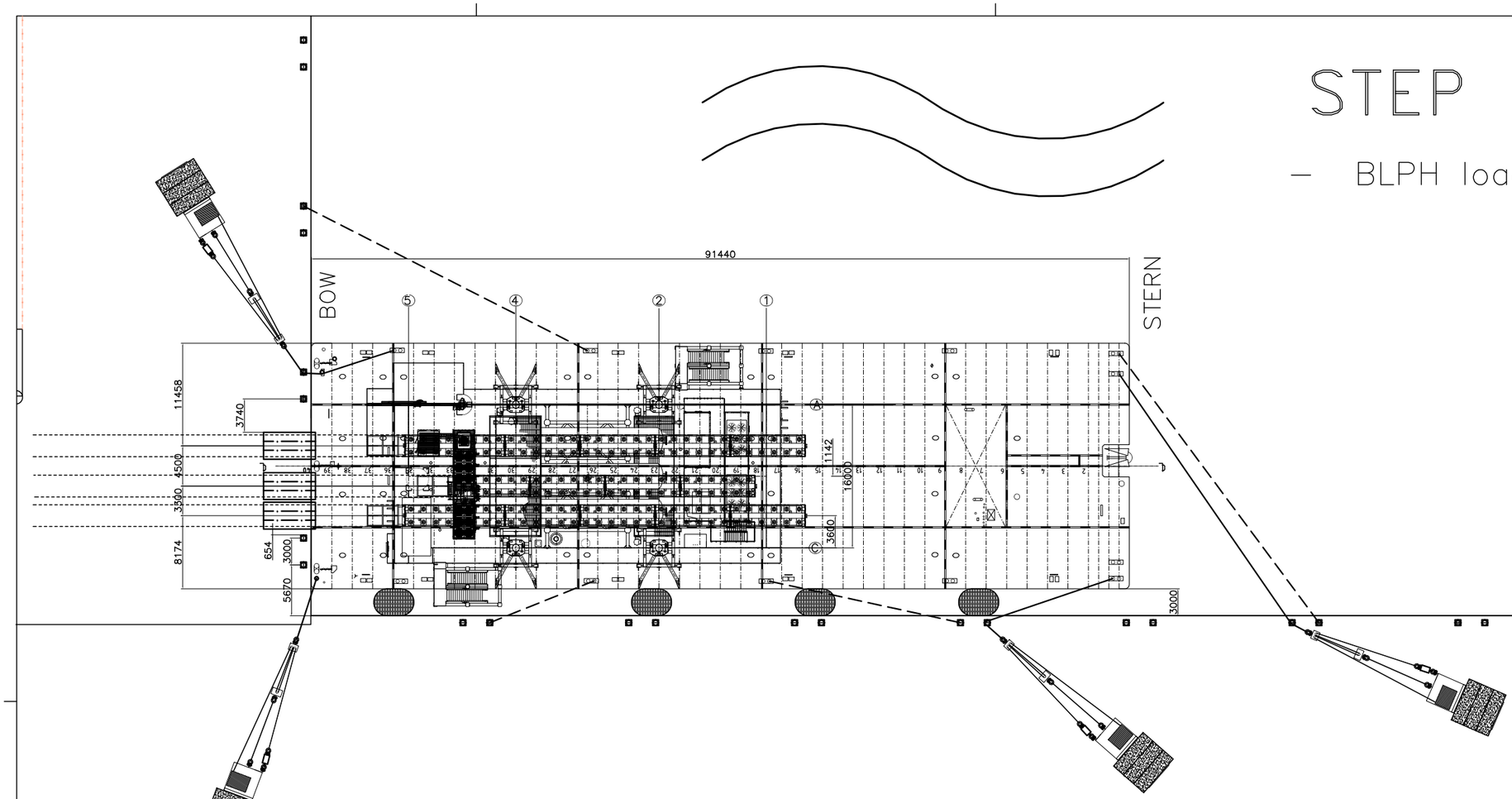
ATTACHMENT B – ITEMS LOCATION ON BUSS YARD

waiting for YARD SUPPORT for TP and CF

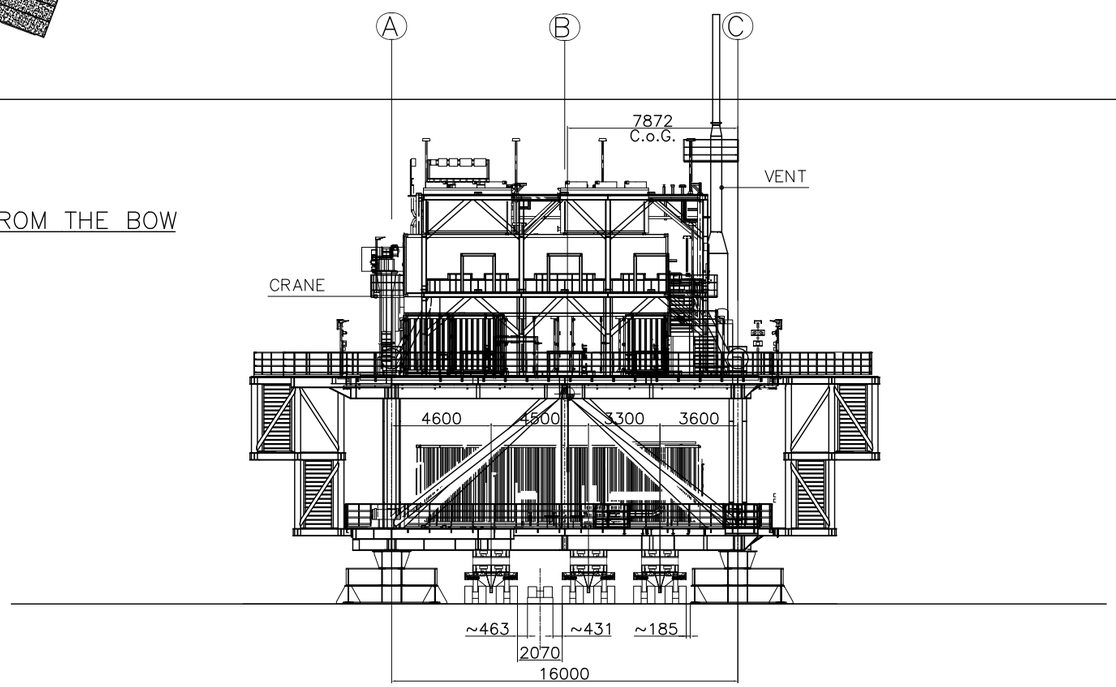
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STEP 1

– BLPH loadin



BLPH – VIEW FROM THE BOW



NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – MOORING SCHEME TO BE DEFINED
4 – FENDER DIAMETER AND POSITION TO BE DEFINED

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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00	21/08/25	NM	FC	CA	

CROSSWIND

ROSETTI MARINO

TITLE :

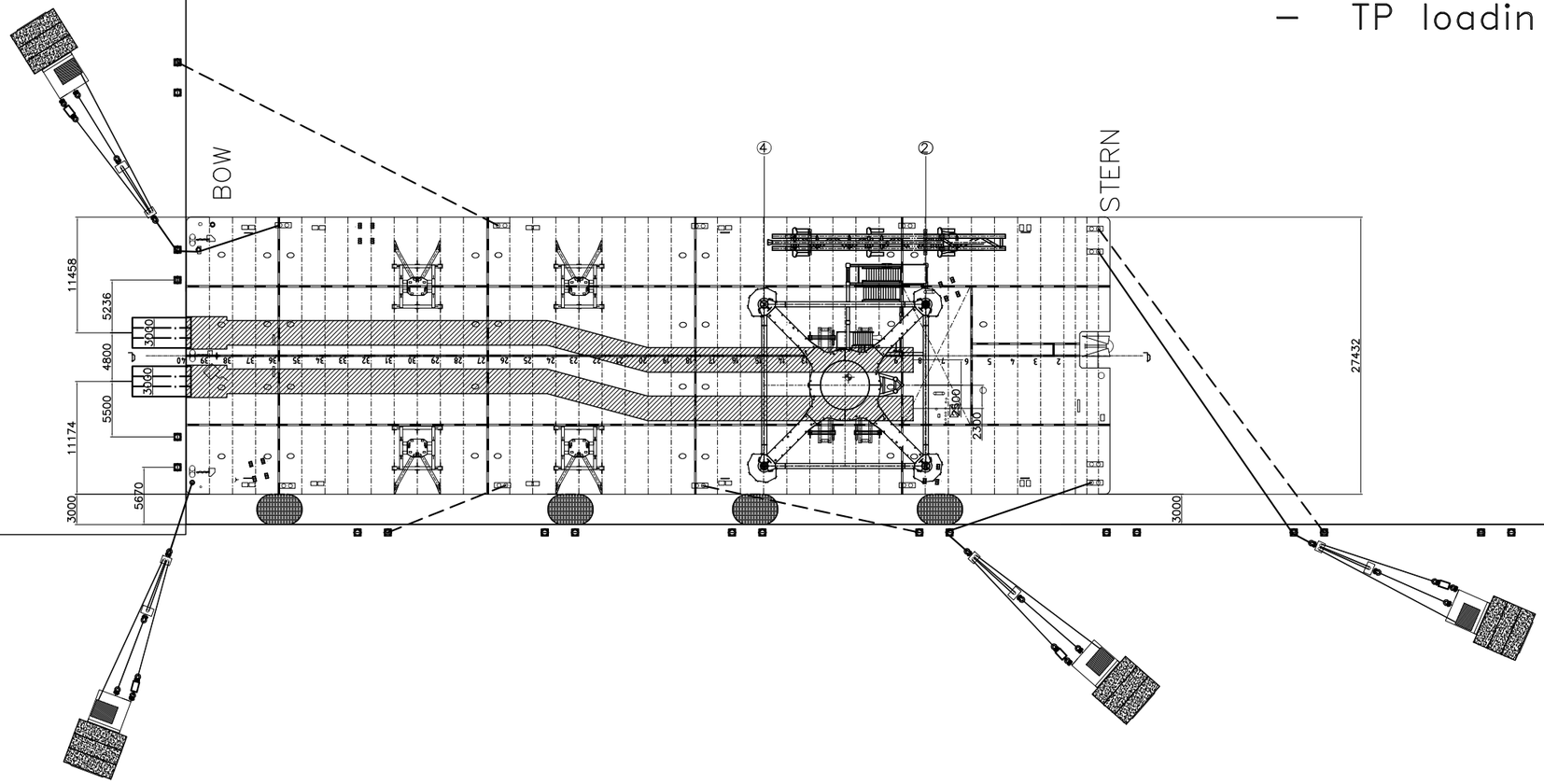
LOADIN CROSSWIND – STEP 1
BLPH LOADIN

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DRAWN N.MARIANI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 26/08/25

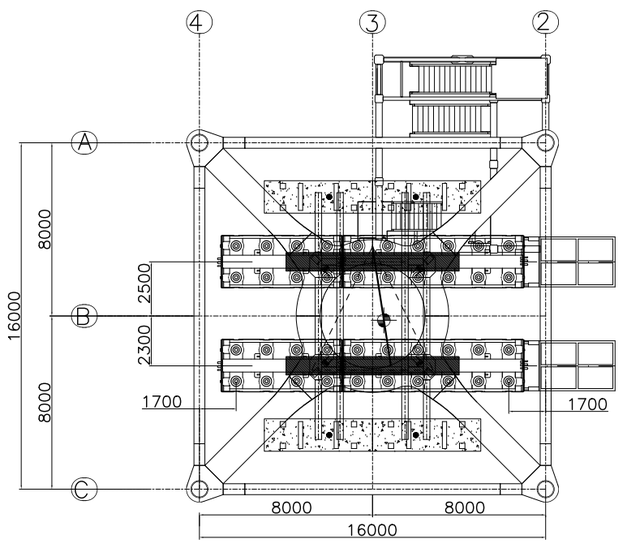
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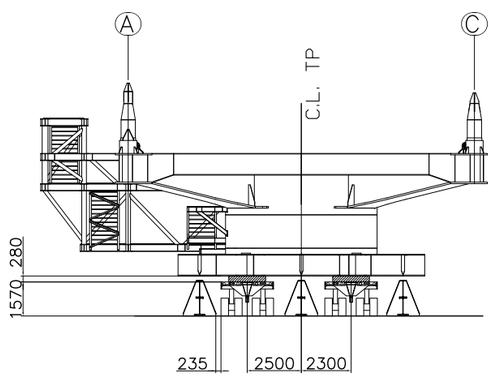
STEP 2

– TP loadin



TP – PLAN VIEW





TP – VIEW FROM THE BOW

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – MOORING SCHEME TO BE DEFINED
4 – FENDER DIAMETER AND POSITION TO BE DEFINED

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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CROSSWIND

ROSETTI MARINO

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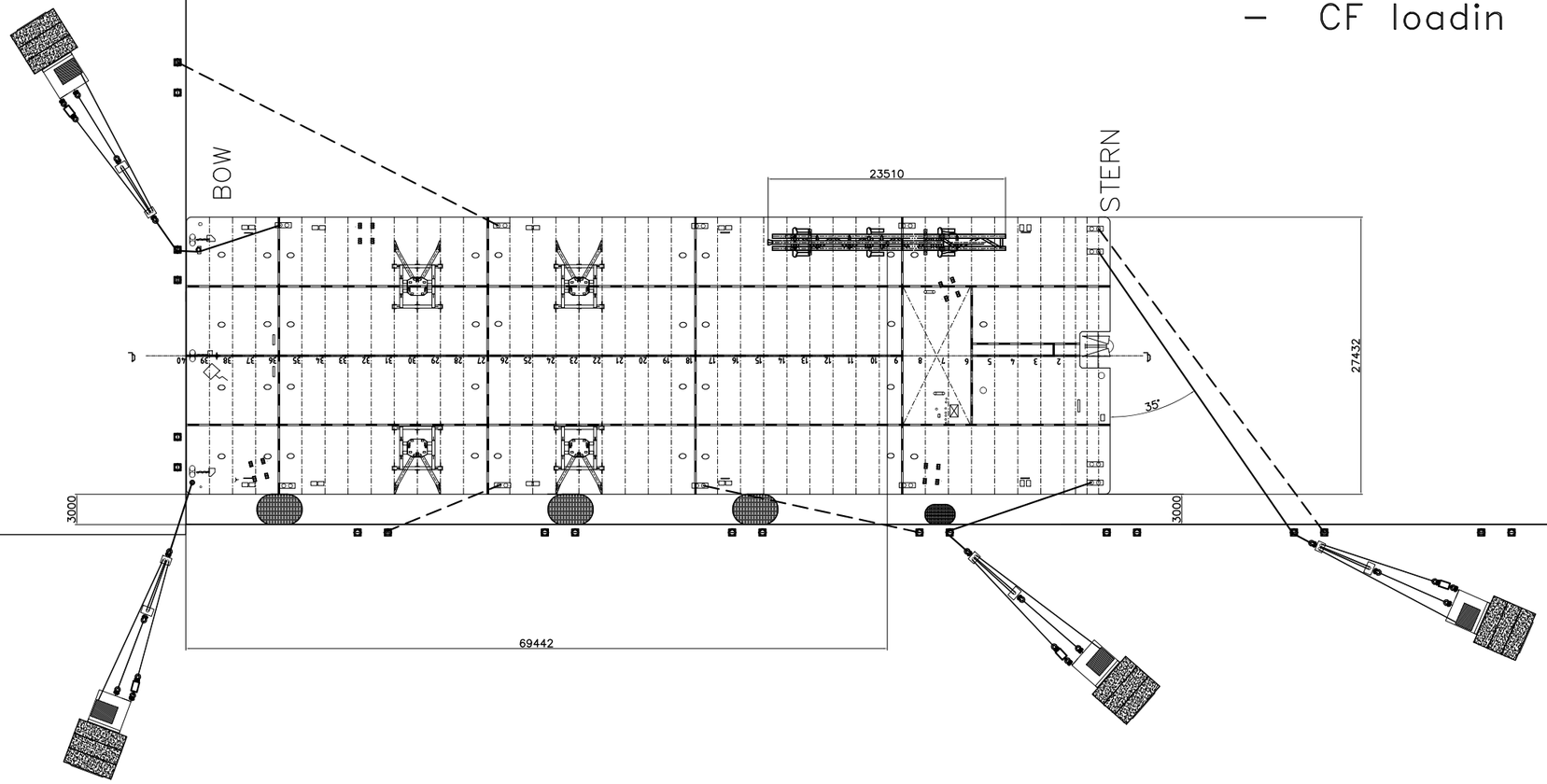
LOADIN CROSSWIND – STEP 2
TP LOADIN

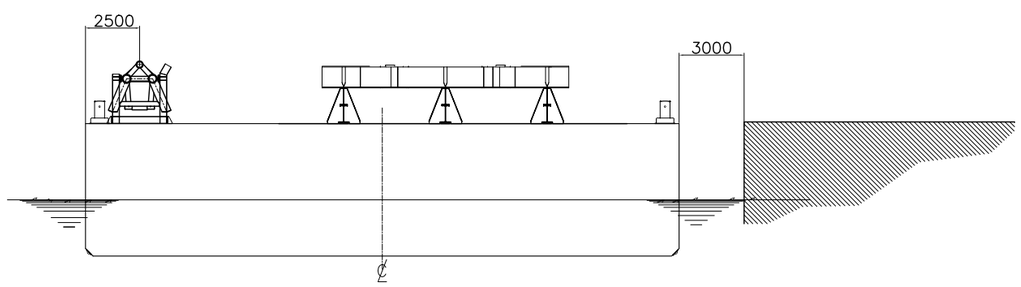
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DRAWN N.MARIANI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 26/08/25

A1	DRAWING NO. 123A90-FDL-MT-DD-00802	SHEET 001	REV. 01

STEP 3

– CF loadin





TP – VIEW FROM THE BOW

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – MOORING SCHEME TO BE DEFINED
4 – FENDER DIAMETER AND POSITION TO BE DEFINED

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
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00	21/08/25	NM	FC	CA	

CROSSWIND

ROSETTI MARINO

TITLE :

LOADIN CROSSWIND – STEP 3
CF LOADIN

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK .			SCALE
DRAWN N.MARIANI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 26/08/25

A1	DRAWING NO. 123A90-FDL-MT-DD-00803	SHEET 001	REV. 01


GATE 1
Roro - Beatrixhaven
2.60m
23.9m
Driving direction
Gate Width and heights
Doc nr: 00099-D001_rev0
Date: 22-08-2025
Ref: FBro


GATE 2
Beatrix haven - Westlob
BUSS
2.70m
26.5m
Driving direction
Gate Width and heights
Doc nr: 00099-D001_rev0
Date: 22-08-2025
Ref: FBro


GATE 3
Westlob – Buss Terminal
2.15m
24.3m
Driving direction
Gate Width and heights
Doc nr: 00099-D001_rev0
Date: 22-08-2025
Ref: FBro


GATE 4 (removed)
Julianhaven – Final position
2.50m
Fence removed,
so not critical
Driving direction
Doc: 0009
Gate Width and heights
Doc nr: 00099-D001_rev0
Date: 22-08-2025
Ref: FBro

Top view

N
W
O
Z

Transport Barge

BEATRIXHAVEN

7.700m²

Transport Route

A
dune set
1
2
3
4
5
6

B
dune set
1
2
3
4
5
6

C
dune set
1
2
3
4
5
6

D
dune set
1
2
3
4
5
6

E
dune set
1
2
3
4
5
6

F
dune set
1
2
3
4
5
6

G
dune set
1
2
3
4
5
6

H
dune set
1
2
3
4
5
6

i
dune set
1
2
3
4
5
6

J
dune set
1
2
3
4
5
6

Topside

10.500m²

Total Transport Area:
10.500 + 7.700 = 18.200m²

Military

32000

Topside in Final Position

JULIANAHAVEN

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
0	First Issue	02-07-2025	FBR	KME

BUSS

Buss Terminal Eemshaven
Westlob 10
9979 XJ Eemshaven, the Netherlands
+31 (0)596 516330

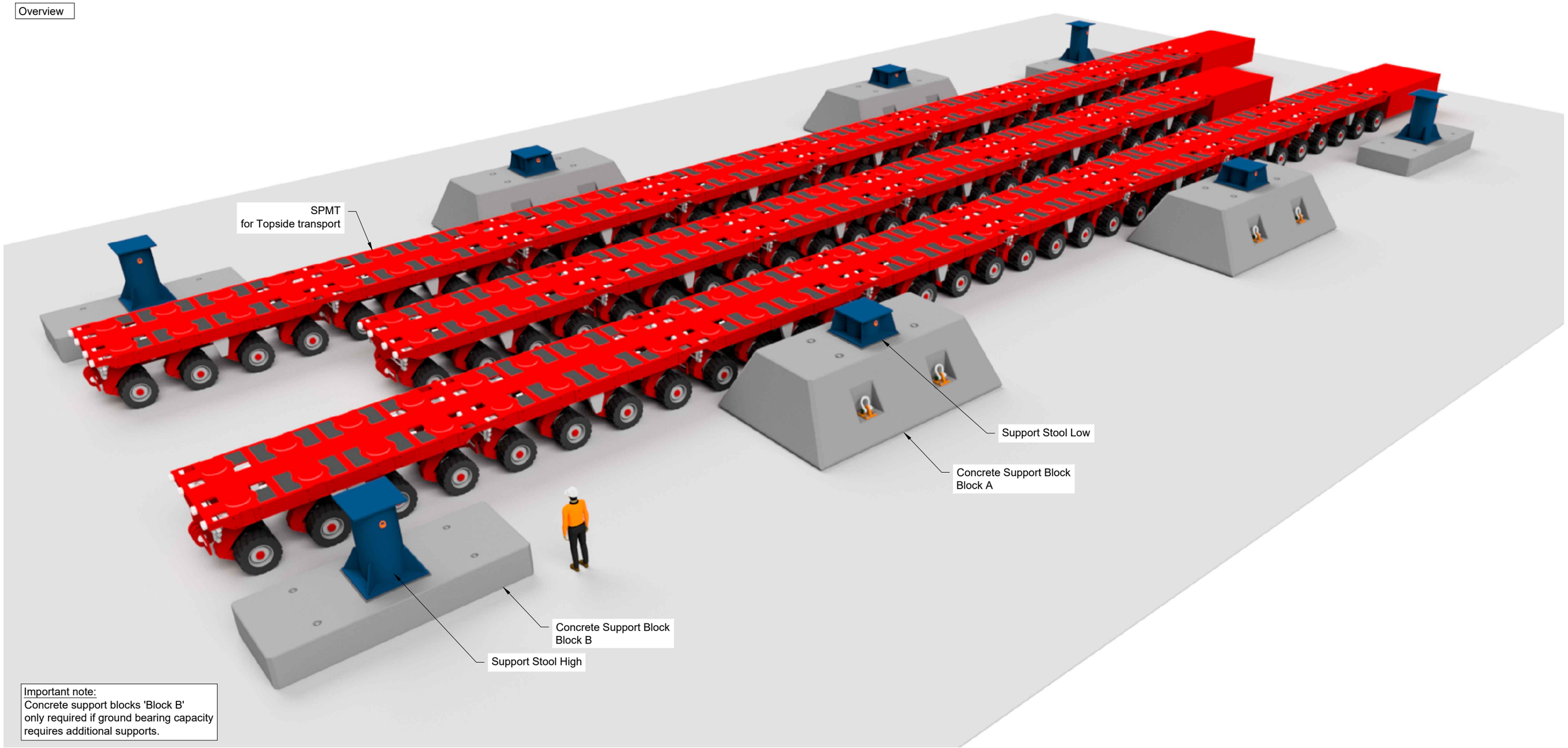
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TITLE: Topside at BTE Terminal
Transport Route Area

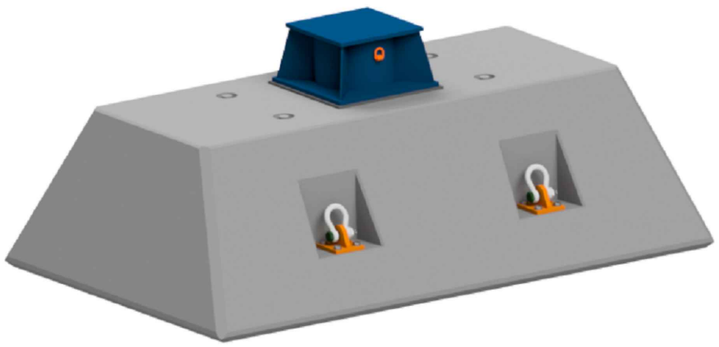
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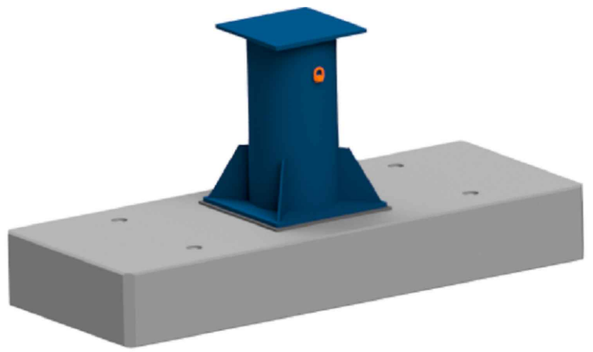
Overview



Important note:
Concrete support blocks 'Block B' only required if ground bearing capacity requires additional supports.



Center Supports [4x]



Outer Supports [4x]

note: only if required

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
0	First Issue	15-06-2025	FBR	KME

BUSS
Buss Terminal Eemshaven
Westlob 10
9979 XJ Eemshaven, the Netherlands
+31 (0)596 516330

PROJECT: Crosswind Project

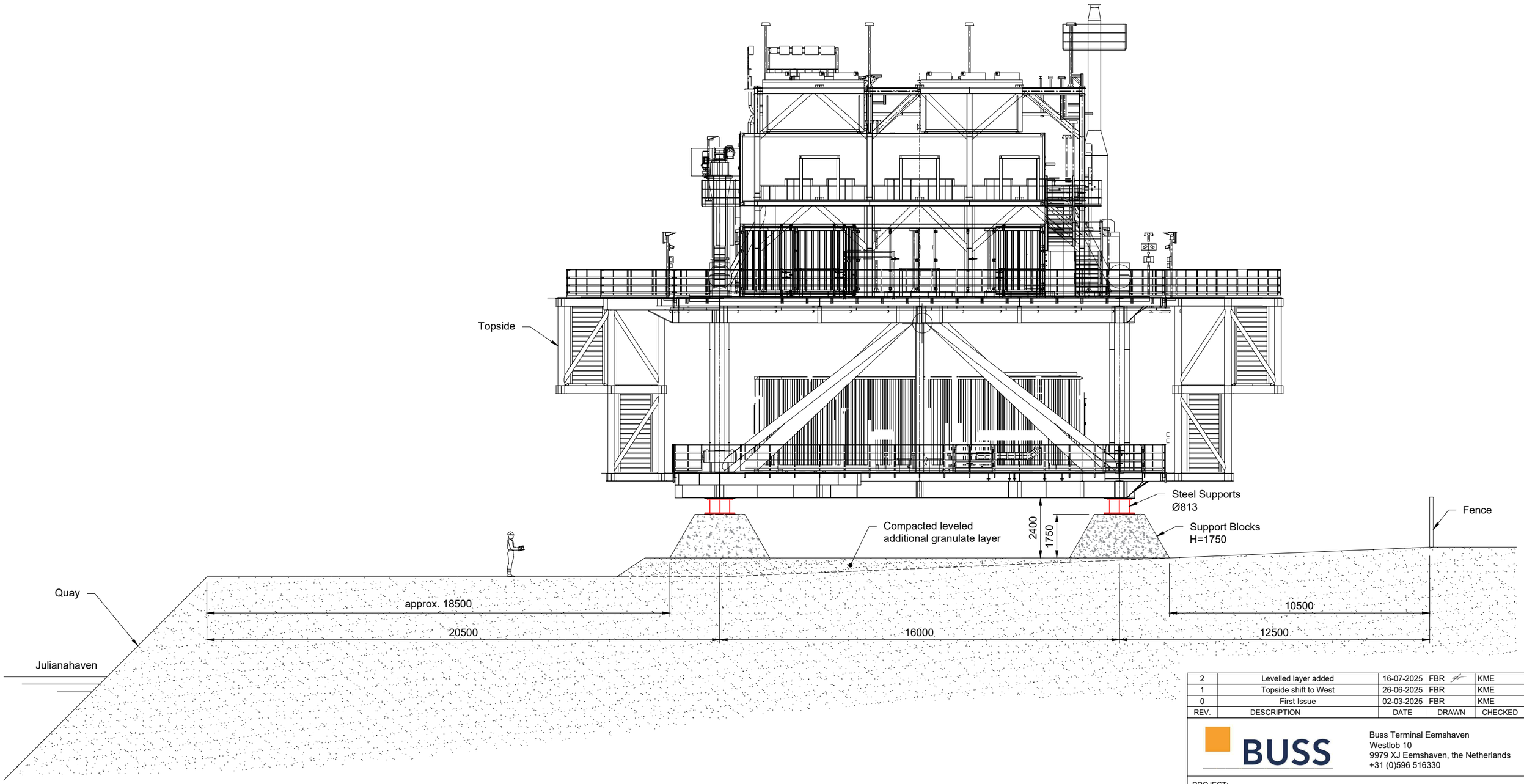
TITLE: Topside at BTE Terminal
Support Arrangement 3D

SCALE:	Size:		SHEET:
DIV	A3		1/1

DRAWING NUMBER: 000099-G - 007

REV: 0

Front View



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
2	Levelled layer added	16-07-2025	FBR	KME
1	Topside shift to West	26-06-2025	FBR	KME
0	First Issue	02-03-2025	FBR	KME

BUSS

Buss Terminal Eemshaven
Westlob 10
9979 XJ Eemshaven, the Netherlands
+31 (0)596 516330

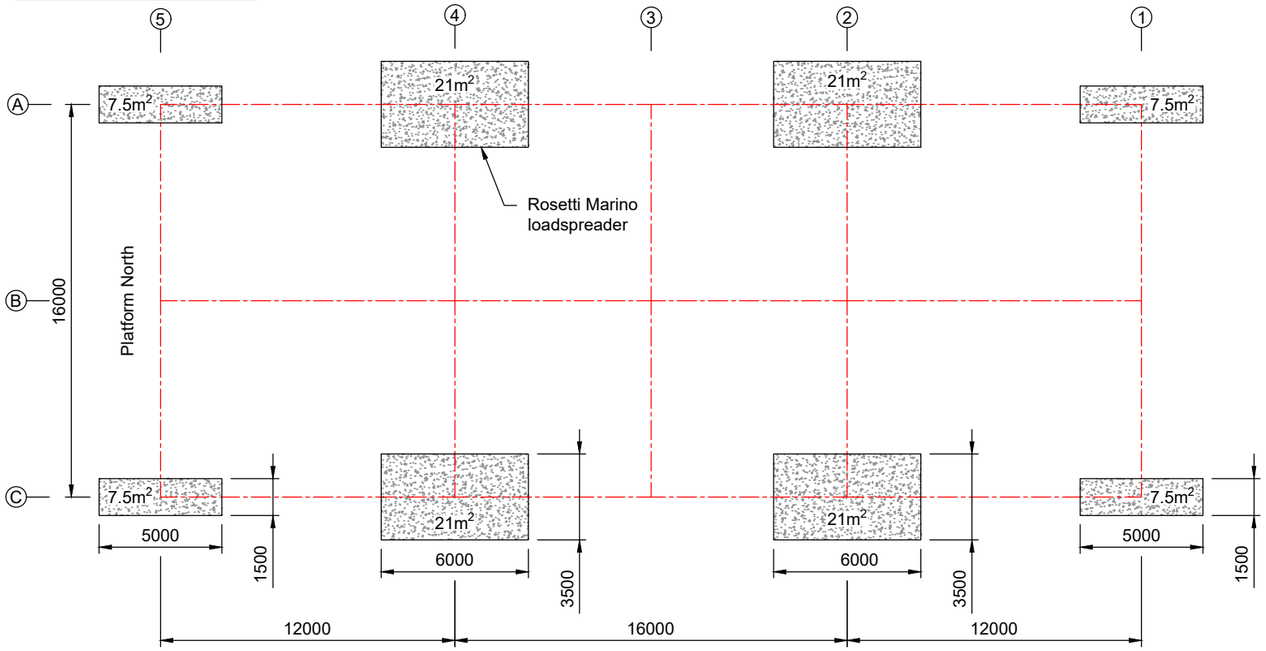
PROJECT: Crosswind Project

TITLE: Topside at BTE Terminal
Final Position Front View

SCALE: 1:150 | Size: A3 | SHEET: 1/1

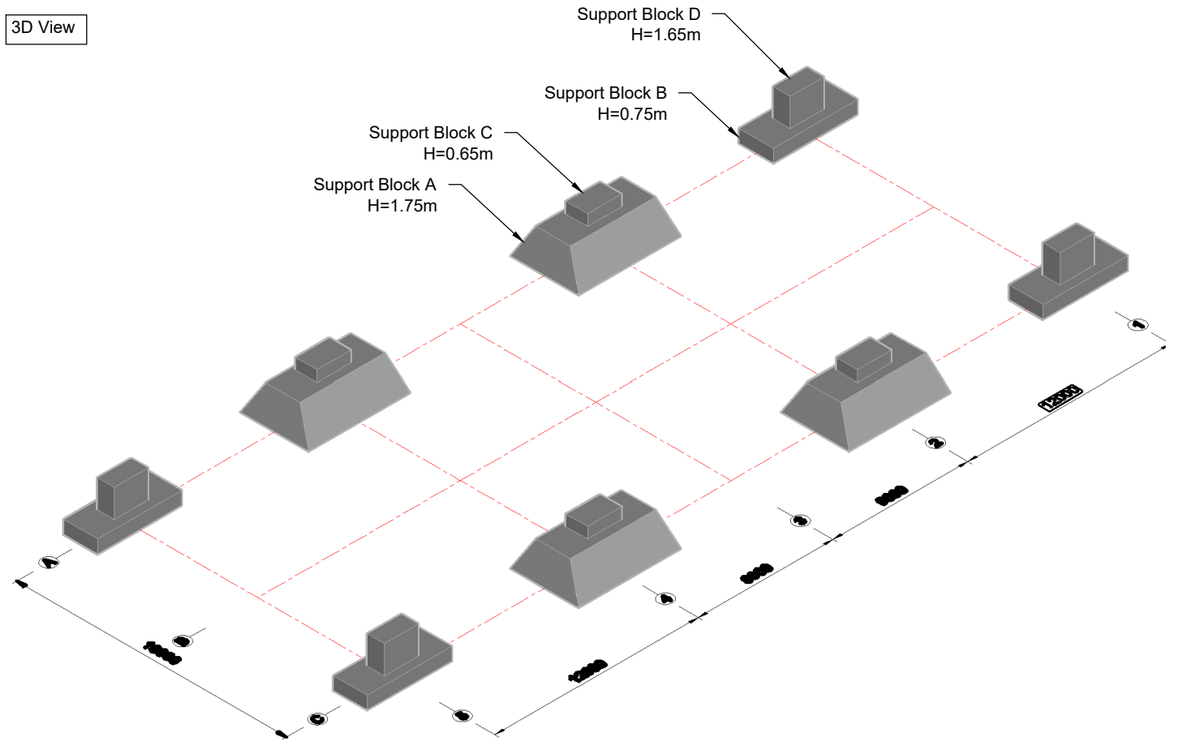
DRAWING NUMBER: 000099-G - 005 | REV: 2

Rosetti Marino Arrangement

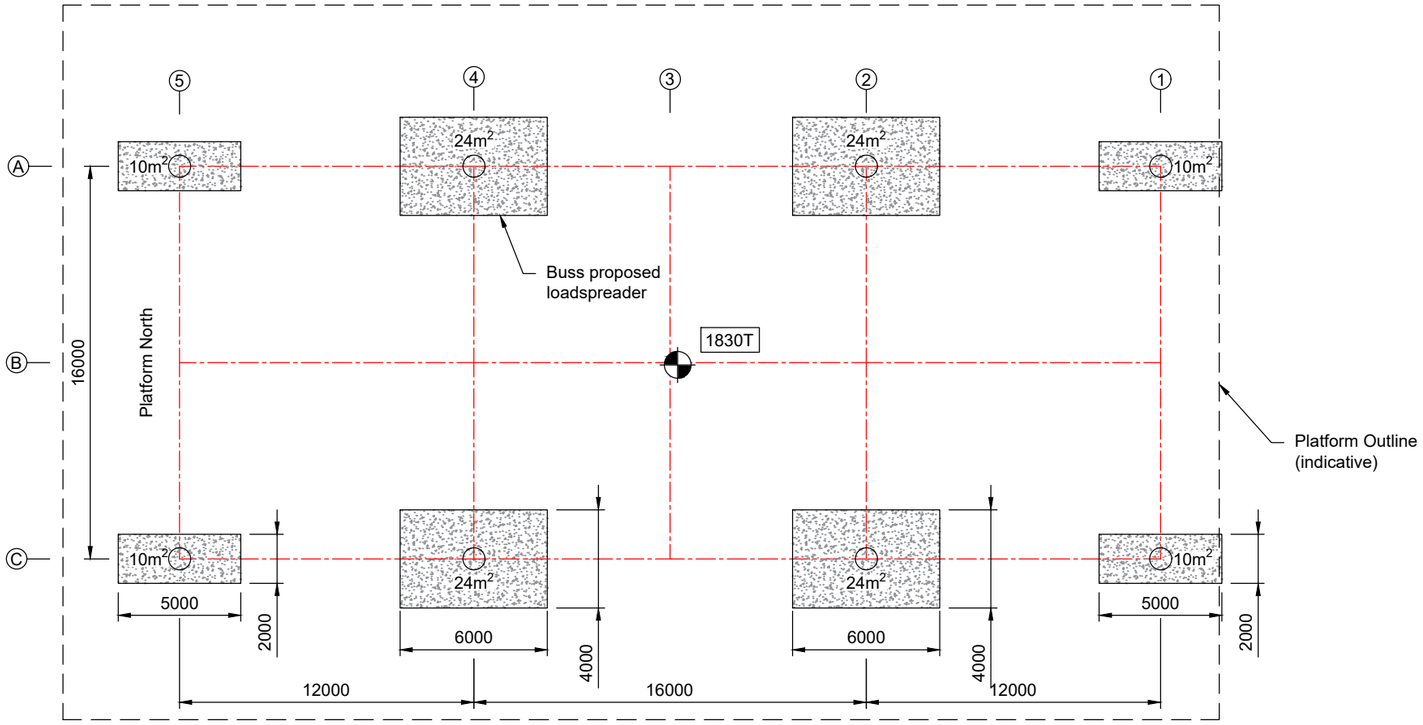


Total loadspreading area: 114m² Topside weight: 1830T
GBP: 1830T/114m² = 16.1T/m² (equally divided without selfweight of supports!)

3D View



Buss Terminal Eemshaven - Proposal



Total loadspreading area: 136m² Topside weight: 1830T
GBP: 1830T/136m² = 13.5T/m² (equally divided without selfweight of supports!)

Note: Client to provide load per support

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
0	Preliminary	08-04-2025	FBR	KME

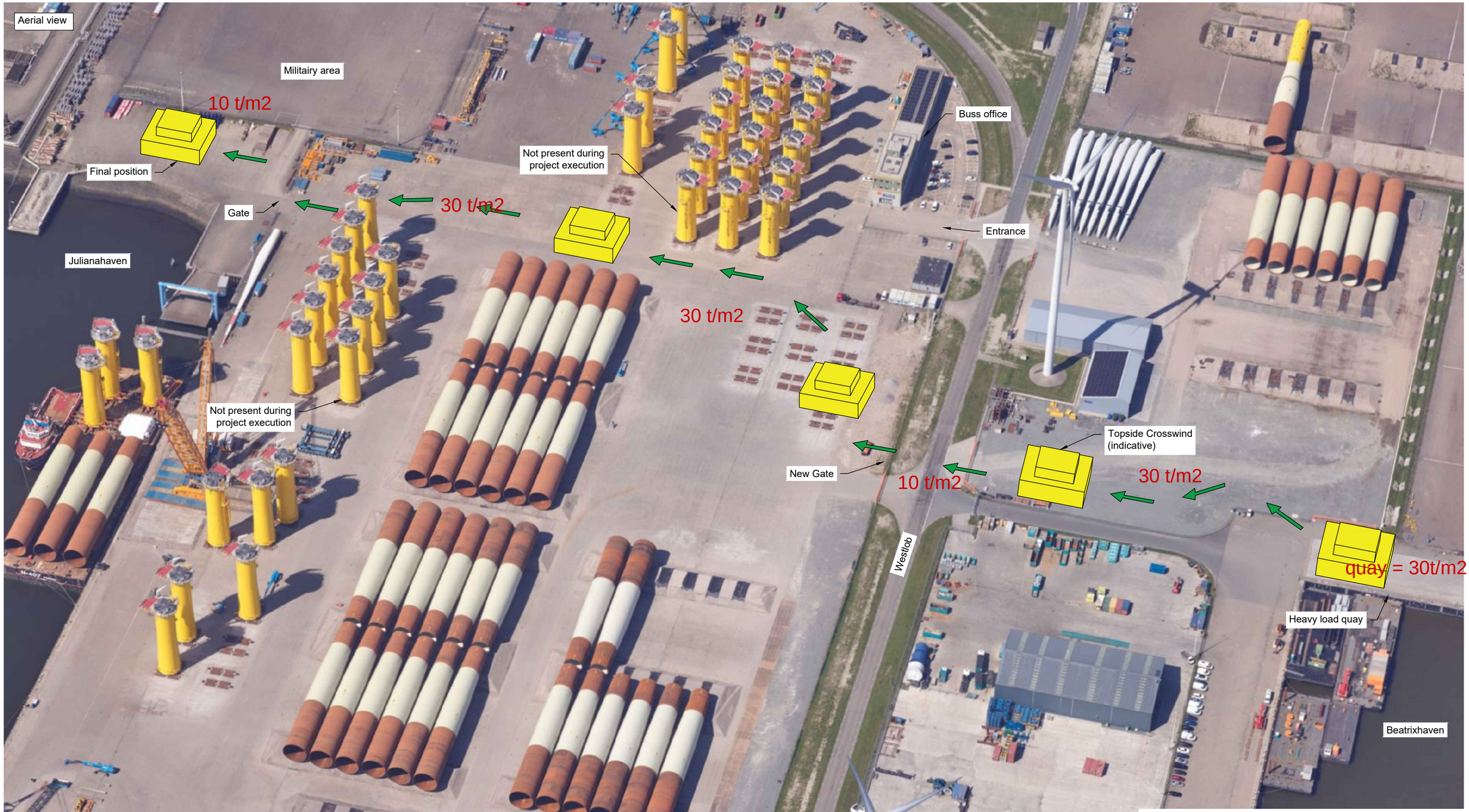
BUSS
Buss Terminal Eemshaven
Westlob 10
9979 XJ Eemshaven, the Netherlands
+31 (0)596 516330

PROJECT: Crosswind Project

TITLE: Topside at BTE Terminal Support Arrangement

SCALE: DIV | Size: A3 | SHEET: 1/1

DRAWING NUMBER: 000099-G - 004 | REV: 0



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
0	First Issue	08-04-2025	FBR	KME

BUSS

Buss Terminal Eemshaven
Westlob 10
9979 XJ Eemshaven, the Netherlands
+31 (0)596 516330

PROJECT: Crosswind Project

TITLE: Topside at BTE Terminal
Transport Route Proposal

SCALE: DIV	Size: A3		SHEET: 1/1
DRAWING NUMBER: 000099-G - 003			REV: 0

ATTACHMENT C – CARGO BARGE VERVECE - SPECIFICATIONS

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MARNAVI S.P.A.
TRASPORTI MARITTIMI



90 x 27m. 300 Feet - Flat deck cargo barge

"VERVECE"

• MAIN DESCRIPTION

Built	June 1996
Builder	SEVMASH – SMP Shipyard SEVERODVISNSK (Russia)
Owner	MARNAVI S.p.A. - Naples
Classification	**BV** - I ✠ Hull, Pontoon, No Propulsion, Unrestricted Navigation
Additional Class	**RINA** - C ✠ Pontoon, S, Unrestricted Navigation
IMO number	9088330
Port of Reg. / Flag	Naples / Italian
BV Number	20382G

• MAIN PARTICULARS

Loa	:	91,440 mt / 300 ft
Breath Moulded	:	27,432 mt / 90 ft
Depth Moulded	:	6,096 mt / 20 ft
Summer load line	:	4,842 mt
Deadweight	:	9700 tons (at Summer Draft)
Displacement	:	11573 tons
Light Weight	:	1850 tons
GRT	:	4066 tons
NET	:	1219 tons

• DECK CAPACITIES

Deck area	:	2508 m^2
Uniform Deck Load	:	25 tons / m^2
Point loads	:	200 – 160 – 100 tons
Bollards	:	For mooring 205 KN – For towing 540 KN
Hull and Structures	:	Raked bow and stern with skeg. Welding according to NS 6038
Material Protection	:	All steel shotblasted to Swedish standard SA 2,5 and primed according Jotum material protection. External and internal Cathodic protection. 5 years anode protect.

• BALLAST PUMP CAPACITIES

Tank Arrangement	:	20 ballast tank served from one pump room
Pump capacity	:	2 x 600m^3

• MACHINERY

Engine / Pumps	:	2 x Mitsubishi diesel driving 2 SPP centrifugal pumps
Submersible pump	:	1 portable electrical driven submersible pump for stripping etc.
Generator	:	One Busck 10 KW / 3 x 400 V / 50 Hz
Batteries	:	2 x 24 V / 115 AH

• DECK EQUIPMENT

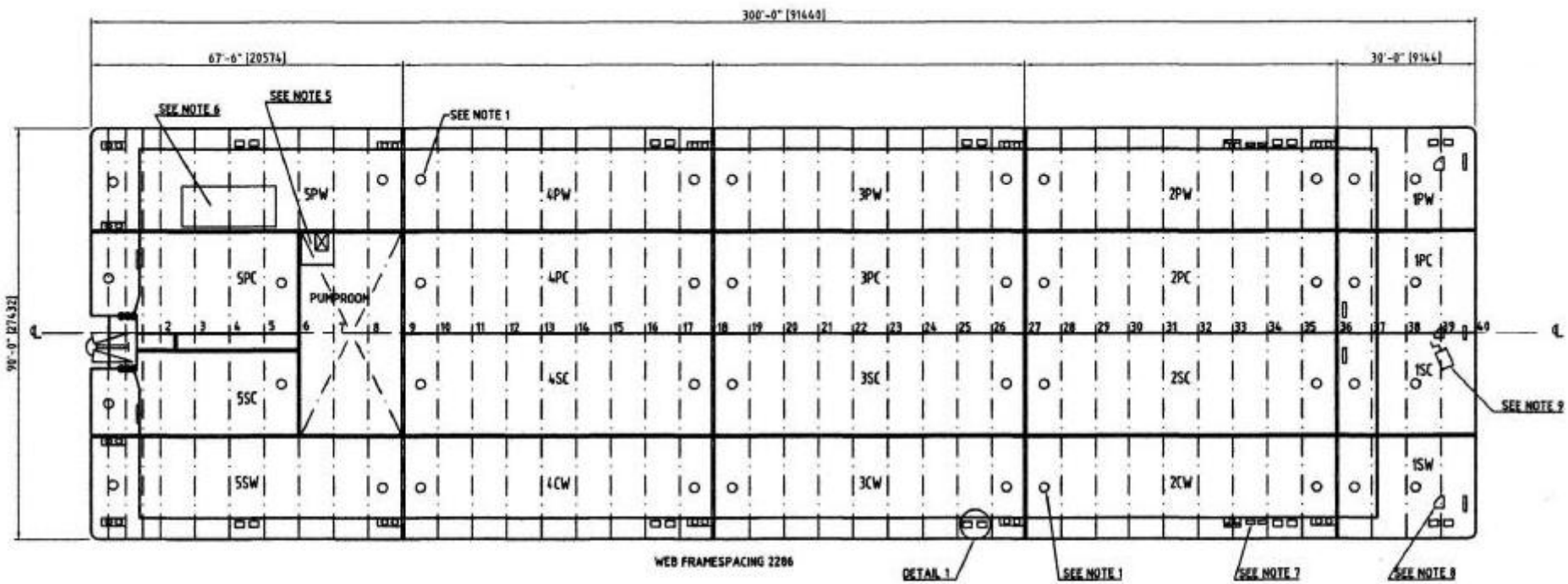
Navigation Light	:	Propane Gas lantern
Anchor	:	Type Stockless, weight 6300 Kg
Anchor Winch	:	Brattvaag / Hagglund hydraulic winch 18 tons pull 1000mt wire 32mm – BL 704 KN
Retriever winch	:	5 tons, manually operated
Towing arrangement	:	Smith's Brackets towing arrangement for main and emergency towing 100 tons SWL

and equipped with water treatment system (from 2023)

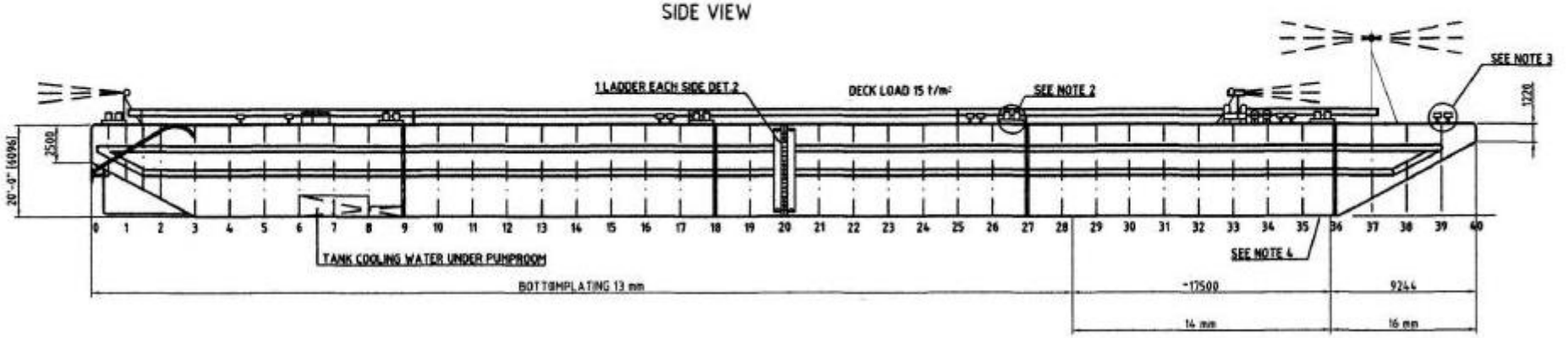
MARNAVI S.P.A. • Address: Via S. Brigida, 39 • 80133 NAPLES • ITALY • Phone: +39 081 251 33 00 • Fax: +39 081 251 33 57 • Email: offshore@marnavioffshore.it • Website: www.marnavi.it

C/B VERVECE – Flat deck cargo barge – 300 x 90 Feet / 90 x 27 m

DECK VIEW



SIDE VIEW



MARNAVI S.P.A.
TRASPORTI MARITTIMI

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ATTACHMENT D – QUAY

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General Information | Buss Terminal Eemshaven

Technical Information & Infrastructure
Beatrixhaven Port Basin

Terminal Area

- Terminal area: 38.500m², planned extension from 01.01.2025 of additional 157.000m²
- Length of quay: 260 mtr (32 m priority, additional 100 m priority form 01.01.2025)
- Design load of 300 kN/sqm, higher point loads allowed

Port basin

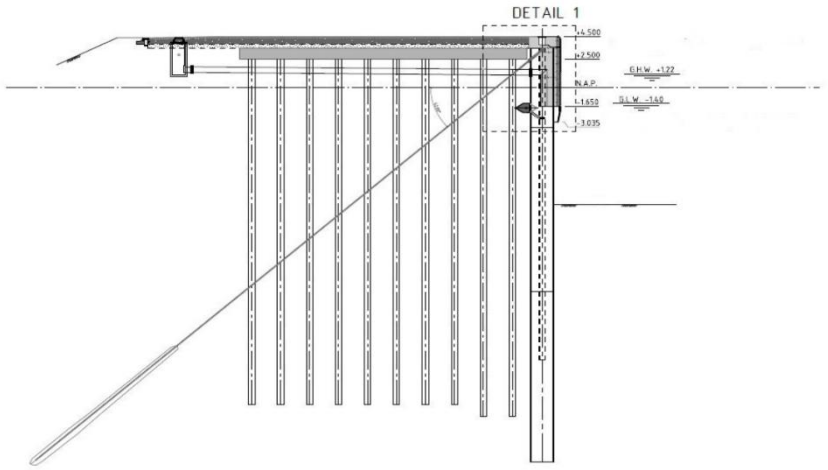
- Width of port basin: 260 mtr
- Width Beatrixhaven Passage: 110 mtr
- Water depth: 11 mtr
- Vessels with a width of > 26 mtr require a permission for berthing from GSP Port Authority

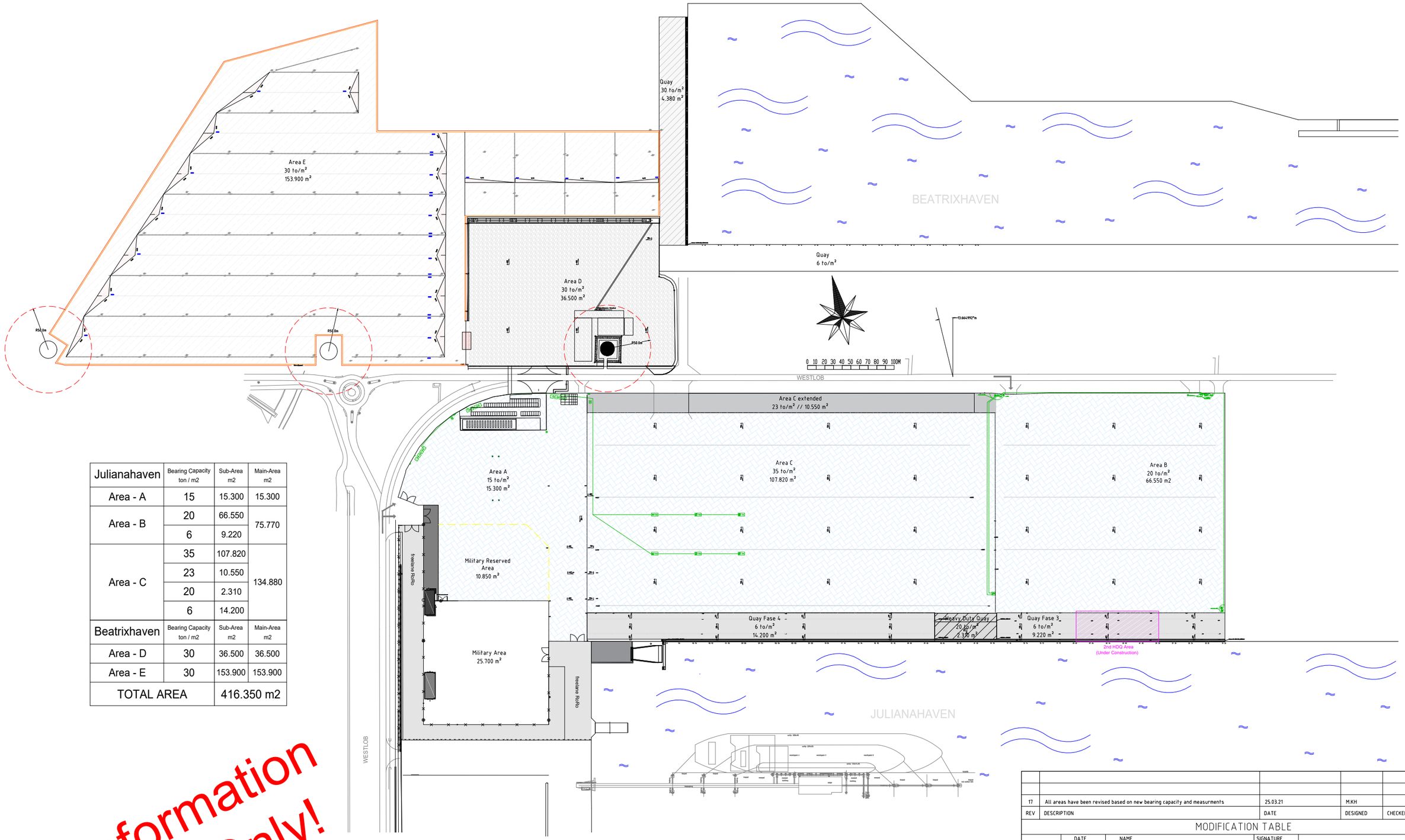
Port access

- Gate passage: unrestricted height
- Depth: 11 mtr at high water (NAP) incl. 10% UKC (UKC Under Keel Clearance)
- Density of water: 1,018 (brackish water)
- 2,5 kn flow velocity
- No locks

Quay infrastructure

- Height of quay above N.A.P.: 4,5 mtr
- Water depth at quay side: 10 mtr
- Tidal range 2 – 3 mtr
- Distance Jack-up Barge: min. 1 mtr from quayside for jacking up
- Uniform distributed design load of quay side 300 kN/sqm
- Bollard pull 600 Kilo Newton (two bollards every 20 mtr)





Julianahaven	Bearing Capacity ton / m2	Sub-Area m2	Main-Area m2
Area - A	15	15.300	15.300
Area - B	20	66.550	75.770
	6	9.220	
Area - C	35	107.820	134.880
	23	10.550	
	20	2.310	
	6	14.200	
Beatrixhaven	**Bearing Capacity ton / m2**	**Sub-Area m2**	**Main-Area m2**
Area - D	30	36.500	36.500
Area - E	30	153.900	153.900
TOTAL AREA		416.350 m2	

For Information Purpose Only!

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
17	All areas have been revised based on new bearing capacity and measurments	25.03.21	M.KH		

MODIFICATION TABLE

	DATE	NAME	SIGNATURE
DESIGNED	25.03.21	Mohsen Kheirparast	M.KH
CHECKED			
APPROVED			

TITLE

Buss Terminal Eemshaven
Terminal Layout
(Internal)

Buss Terminal Eemshaven B.V.
Westlob 8,
NL-9979 XJ Eemshaven
www.buss-terminal-eemshaven.com

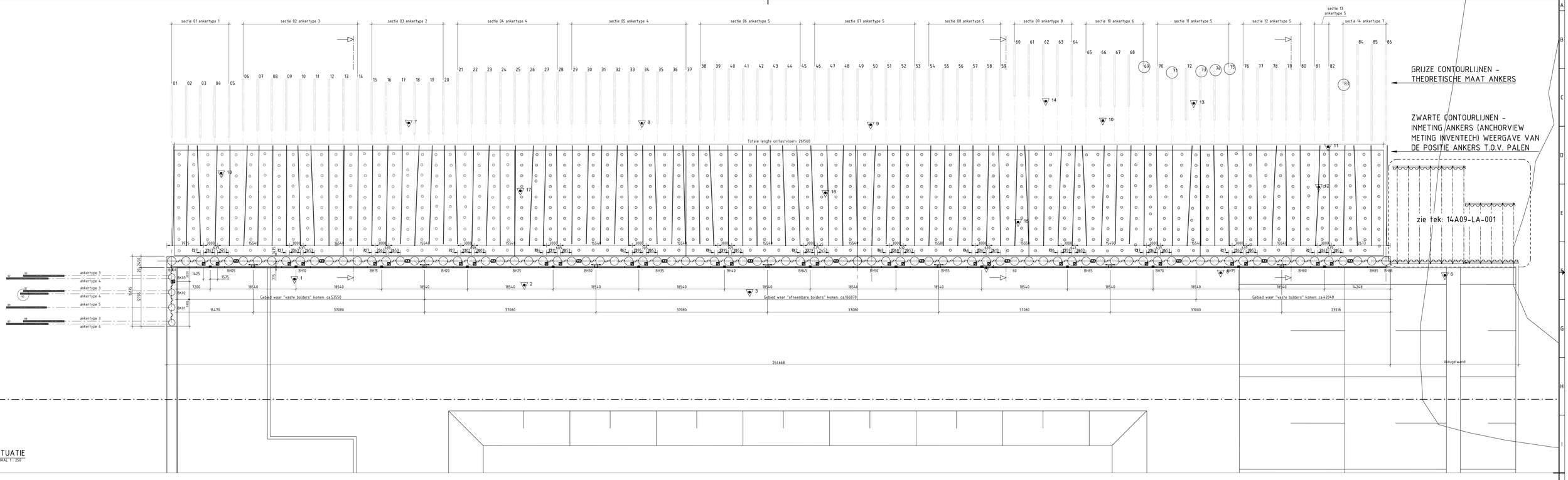
Customer

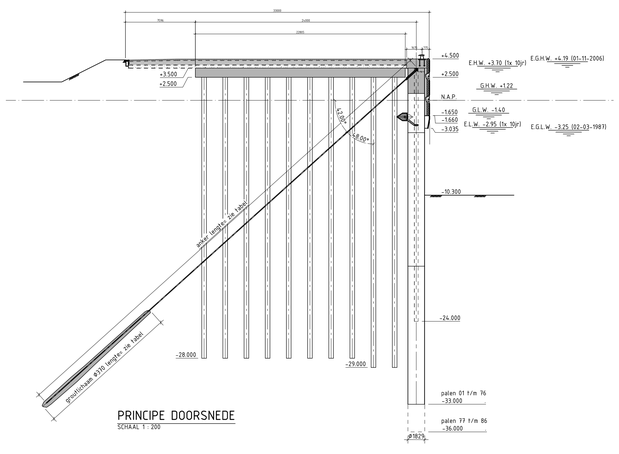
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Annex 5 - Cross section Heavy Load Quay Beatrixhaven





Afwijking	
ankernr.	korter
69	4.0 m.
71	1.5 m.
73	1.0 m.
74	0.8 m.
75	0.4 m.
83	12.0 m.
90	4.0 m.

Tabel 25 Samenvatting ankerontwerp "Overgangskade Fase 3-5"

Type	Ankertype	Insteek-niveau	H.o.h. afstand	Helling anker t.o.v. de horizontaal	Totale lengte anker	Lengte grout-lichaam
	[°]	[m NAP]	[m]	[°]	[m]	[m]
3	103-6/2	+ 2,90	2,19	45	45,0	12,5
4 **	103-9/7	+ 2,90	2,19	41	47,0 **	12,0 **
5 **	103-6/7	+ 2,90	2,19	41	47,0 **	11,5 **

tabel is uit document: P14004 ontwerprapport verankering - rev A
GEOTECH foundation solutions B.V.

Tabel 26. Samenvatting ankerontwerp "Kademuur Fase 5"

Sectie	Ankertype	Insteek-niveau	H.o.h. afstand	Helling anker t.o.v. de horizontaal	Totale lengte anker	Lengte grout-lichaam
	[°]	[m NAP]	[m]	[°]	[m]	[m]
1 ①	117/64	+ 3,30	3,09	42	51,0	15,0
2 ①	117/64	+ 3,30	3,09	42	53,0	15,0
3 ①	117/64	+ 3,30	3,09	42	52,0	15,0
4 ①	117/64	+ 3,30	3,09	42	55,0	15,0
5 ①	117/64	+ 3,30	3,09	42	55,0	15,0
6 ①	117/64	+ 3,30	3,09	42	56,0	15,0
7 ①	117/64	+ 3,30	3,09	42	56,0	15,0
8 ①	117/64	+ 3,30	3,09	42	56,0	15,0
9 ①	117/64	+ 3,30	3,09	42	63,0	15,0
10 ①	117/64	+ 3,30	3,09	42	60,0	15,0
11 ①	117/64	+ 3,30	3,09	42	56,0	15,0
12 ①	117/64	+ 3,30	3,09	42	56,0	15,0
13 ①	117/64	+ 3,30	3,09	42	56,0	15,0
14 ①	117/64	+ 3,30	3,09	42	53,0 **	24,0 **

tabel is uit document: P14004 ontwerprapport verankering - rev C
GEOTECH foundation solutions B.V.
① = ankertype (gebaseerd op anker lengte).
** = aangepast

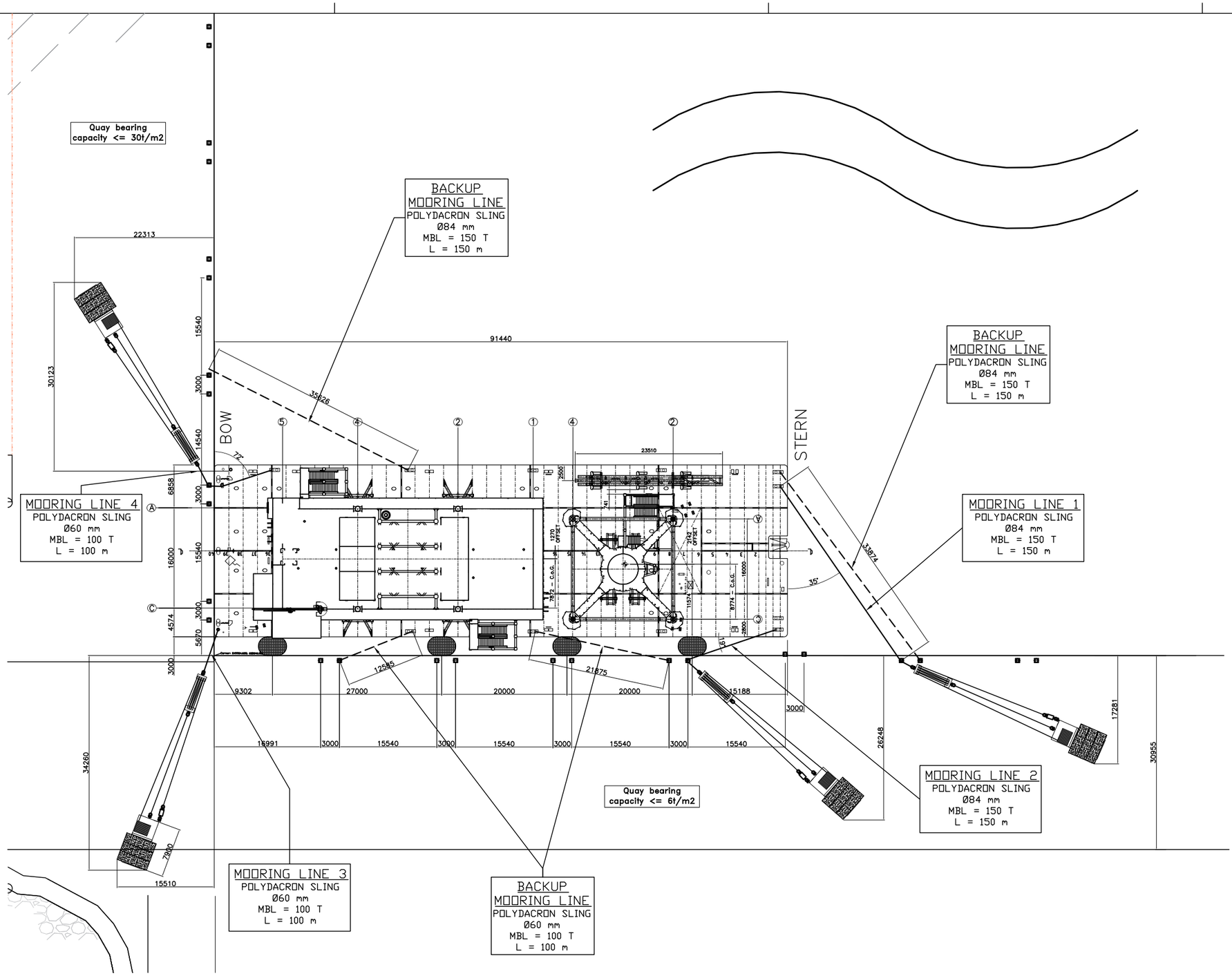
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- Alle maten in mm
- Coordinaten in het Rijksdriehoek-coordinatenstelsel
- Hoeken in "360-graden"
- Voor detailering "Vleugelwand" zie tekening: blad 16 van 68

GRONINGEN SEAPORTS	Location:	EEMSHAVEN	Dwg no. GIR: 13648_07
Port Authority Delfzijl/Eemshaven Handelskade Oost 1 - Box 20004 - 9930 PA Delfzijl Postbus 20004 - 9930 PA Delfzijl NL +31 (0) 596 64 34 00 - fax +31 (0) 596 63 04 44 info@groningenseaports.com website: www.groningenseaports.com	Discipline:	ALGEMEEN	
	Status:	AS BUILT	Revision: 0.0
	Title:	BEATRIXKADE FASE 3 BESTEK B00608/2012, BEATRIXHAVEN, WESTLOPER ANKERS	Reg. 3-4 Size A0+ Projection: 1250 Scale 1:200 1:250
	Blad 2 van 68		
	Drawn by De Klerk	Date 28-05-2014 Approved by	
Type Nr. Date By 0 13-01-2015 AS BUILT	Description		Dwn. by Chk.d. Appr. JWP

29-01-2015 G:\Projecten\14A09 - Kadeconstructie Beatrixhaven\Tekeningen\As built\13648-07.dwg

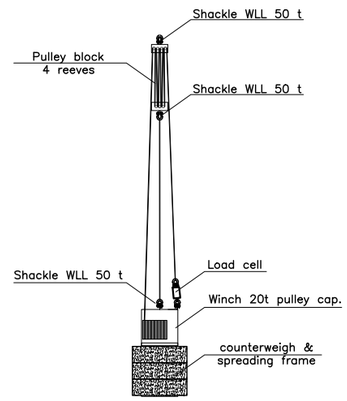
ATTACHMENT E – MOORING SCHEMES & FENDERS

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NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – MOORING SCHEME TO BE DEFINED



REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/08/25	AB	FC	CA	
00	21/08/25	NM	FC	CA	

CROSSWIND — ROSETTI MARINO

TITLE :
LOADIN CROSSWIND
MOORING COMPONENTS DETAILS

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE
DRAWN N.MARIANI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 04/08/25

A1	DRAWING NO. 123A90-FDL-MT-DD-00806	SHEET 001	REV. 01

ATTACHMENT F – MOORING WINCHES & LINES

wating for ALL the SPEC / CERTIFICATIONS

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ATTACHMENT G – MOORING ANALYSIS

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Client:

ROSETTI

Job:

CROSSWIND

Title:

APPENDIX G - Load-in and Stand-by Mooring Analyses

0	21-08-25	Issued for Approval	TECON	FC	CA
REV	**DATE**	**DESCRIPTION**	**PREP.**	**CHK.**	**APPROV.**

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1. GENERAL 3
2. REFERENCE CODE AND DOCUMENTS 4
2.1 CODES 4
2.2 REFERENCE DOCUMENTS 4
2.3 SOFTWARE 4
3. CONCLUSIONS 5
3.1 PRACTICAL GUIDANCE 5
4. MOORING ANALYSIS 6
4.1 ENVIRONMENTAL DATA 6
4.2 QUAY INFRASTRUCTURE 6
4.3 WINDAGE AREAS 8
5. MOORING ANALYSIS RESULTS 10
5.1 LONG TERM MOORING – ALL WIND DIRECTIONS 10

1. GENERAL

This report presents the results of the mooring analyses of barge Vervece carried out for the following situation at Bearixhaven quay (Eemshaven):

- Operation mooring configuration
- Alongside (long-term) mooring configuration

Both the above mooring configurations are the same; barge will be moored with Bow and PS facing the quay sides.

The mooring arrangement drawing is presented in Appendix to Loadin manual.

2. REFERENCE CODE AND DOCUMENTS

2.1 Codes

/1/. DNVGL-ST-N001 Marine operations and marine warranty, 2023
/2/. IMO (2008). IS code – international code on intact stability. Part A. London, UK: IMO resolution MSC.267 (85)(89)
/3/. IMO (2009). SOLAS – International convenction for the safety of life at sea. Chapter II-1. Part B-1.

2.2 Reference documents

/4/.	Quay fenders
/5/.	Mooring rope datasheet and cert.
/6/. 123A90-FDL-MT-DD-00805	Mooring arrangement

2.2.1 Barge documents

/7/. Vervece	Stability booklet

2.3 Software

/8/. OPTIMOOR by tension Technology, version 6.2.8

3. CONCLUSIONS

The table below presents the omnidirectional windspeed capacity based on the most critical wind heading for all the considered configurations.

- Long-term mooring: it complies with the 50-years return period maximum average wind speed with barge in sail away condition.

Omnidirectional wind speed	Long term mooring
Intact condition	27 m/s (54 knots) - 10min mean

Table 3-1: Omnidirectional max wind speed for the mooring configurations

3.1 Practical Guidance

The mooring arrangement (lines, winches, bollards) will be monitored by the mooring operators and adjusted if required.

Favorable weather conditions are required for loadin operation, the wind speed limit is set to 15m/s – 3 sec gust – 10mtr.

While for the mooring system the wind speed limit is 27m/s – 10min mean – 10mtr".

4. MOORING ANALYSIS

The calculation models are based on mooring plan and vessel characteristics, considering the wind area of the loaded vessel.

4.1 Environmental Data

The minimum wind speed is the 50-years maximum of 27 m/s omnidirectional, resulting in 31.6 m/s for 15-sec gust.

The sheltered location is in a dead-end waterway, hence no current loads are expected and applied. The same applies for wave loads and swell.

4.2 Quay infrastructure

Description of the mooring system is given also in section 8 of Loadin manual main text.

- Height of quay above N.A.P.: 4,5 mtr
- Water depth at quay side: 10 mtr
- Tidal range 2 – 3 mtr
- Distance Jack-up Barge: min. 1 mtr from quayside for jacking up
- Uniform distributed design load of quay side 300 kN/sqm
- Bollard pull 600 Kilo Newton (two bollards every 20 mtr)

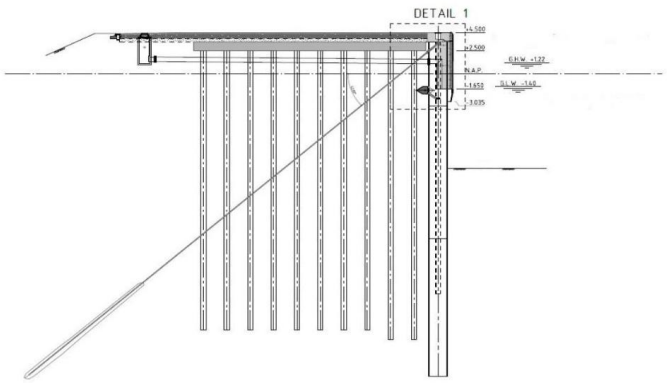


Figure 4-1: Quay section view

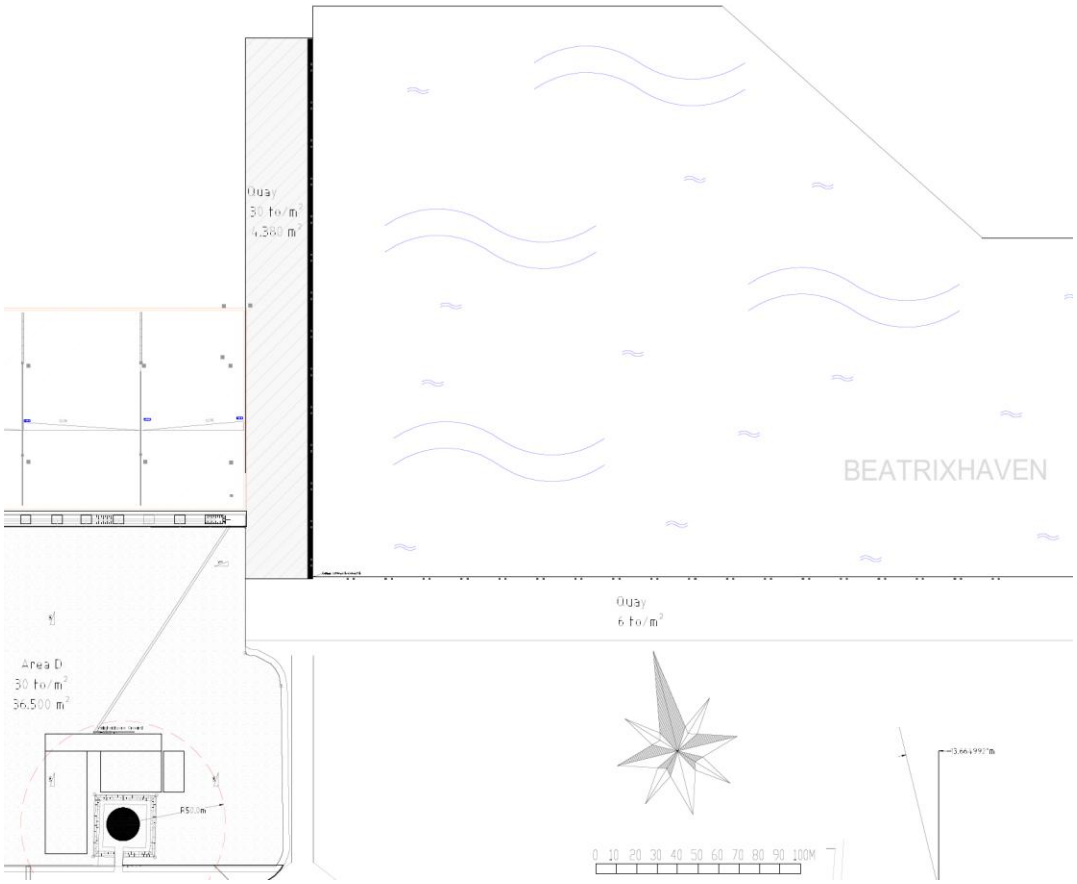


Figure 4-2: Quay plan view

4.2.1 Bollards

Double bollards every 20m, capacity SWL = 60 t

4.2.2 Winches

Winches pull capacity, SWL = 20 t
Winches brake capacity, SWL = 50 t

4.2.3 Mooring lines

Material	Polydacron
Diameter	76.0mm
Lengths	4x150m and 4x100m
MBL	4x150 ton and 4x100 ton

4.2.4 Fenders

The maximum compression is assumed with a reaction force of 100 t compression for the rigid fenders used during loadin (bow interface).
While the quay fenders positioned on PS are yokohama cylindric fenders 3000x3000.
The maximum compression is assumed at 40% with a MAX reaction force of 100 t compression.

4.3 Windage areas

The exposed windage areas are composed by cargoes and vessel. Optimoor automatically calulates the vessel area, while cargo windage areas are inputed.

Lateral area

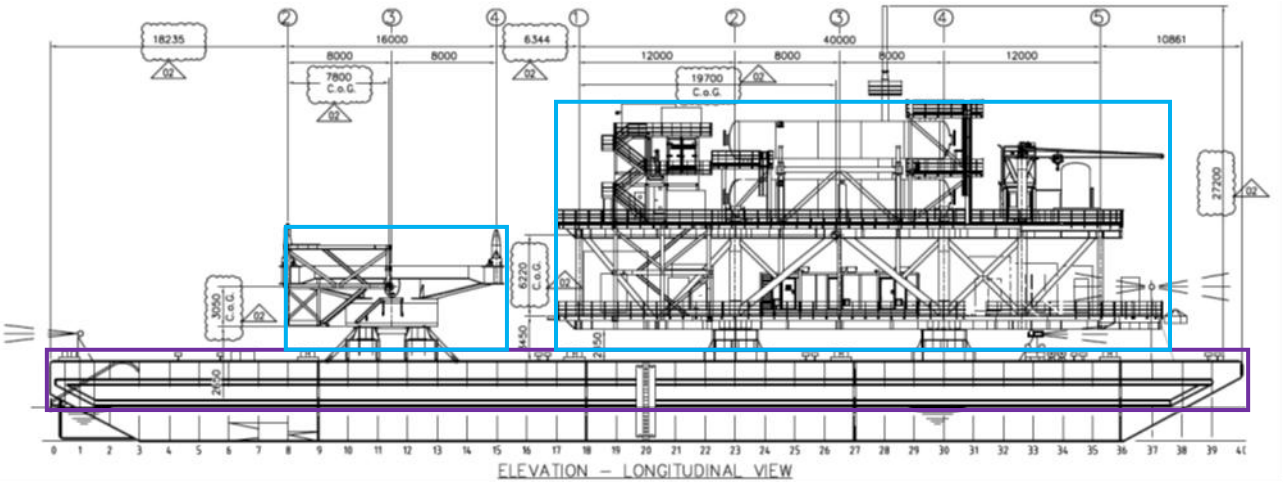


Figure 4-3: Windage lateral area

The following list summarizes the main data relevant to Exposed Areas shown above:

- Cargo Barge (Violet): Exposed area equal to 190 m2 (considering min draft condition) with a Center of Exposed Area located at midship;
- TP, Topside & Grillages (Blue): BLPH Exposed Area equal to 640 m2 with a Center of Exposed Area located at 30.9 m from Barge bow, TP Exposed Area equal to 100 m2 with a Center of Exposed Area located at 66.4m from Barge bow, CF covered by the above numbers.

Total side windage area = 190+740 m^2

Front area

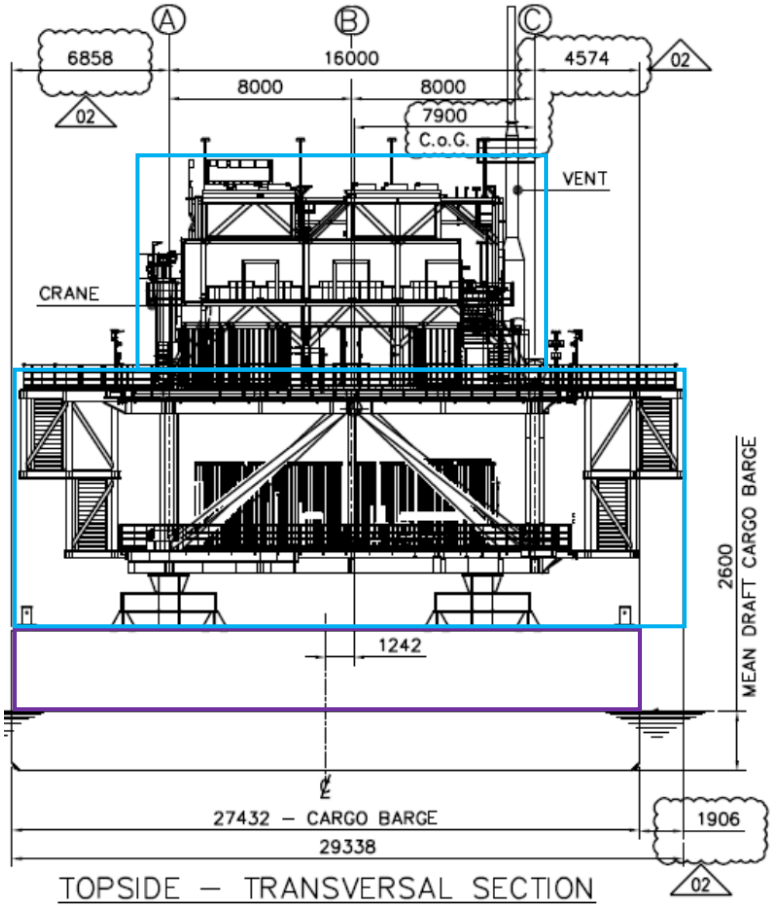


Figure 4-4: Windage front area

The following list summarizes the main data relevant to Exposed Areas considered for this condition:

- Cargo barge (Violet): Exposed area equal to 80 m^2 (considering min draft) with a Center of Exposed Area located on Barge Centre Line;
- Topside (Blue): Exposed Area equal to 340 m^2 with a Center of Exposed Area located on Barge Centre Line;

Total front windage area = 80+340 m2

5. MOORING ANALYSIS RESULTS

Mooring analyses are performed following the WSD approach, hence the Safety factors used for:

- Bollards: SF = 2.0 intact, SF = 1.5 damaged
- Lines: SF = 3.0 intact, SF = 2.0 damaged

5.1 Long term mooring – All wind directions

The wind rose given in fig. 5-5 shows the maximum allowable wind speed per heading to stay within the SWL of the bollards on the quay as those are the limiting factors for the mooring spread.

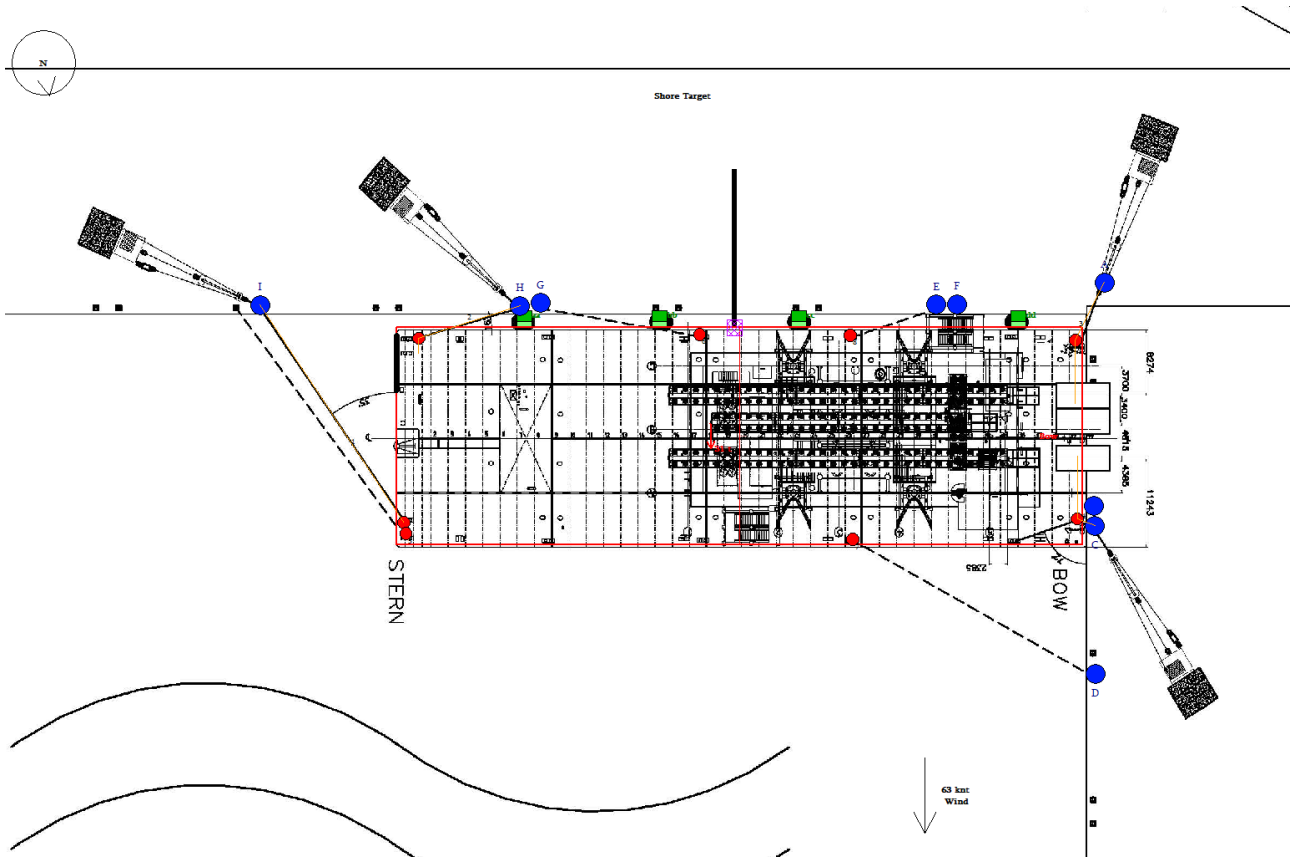


Figure 5-1: OPTIMOOR layout

Berth Data for BH long-term
(file L:\COMMESSE\ROS\1783\06-DOC\08 - OFFLOADING\OPTIMOOR\Eemshaven-Beatrixhaven\BH-longterm.bth)
Units in m & tonnes
Solid Pier Shields Wind
Solid Pier Shields Waves

Left to Right of Screen Site Plan Points:	280°
Width of Channel (for Current):	500
Pier Height (Fixed) above Datum:	4.5
Dredged Depth below Datum:	10.0
Permissible Surge Excursion Fwd/Aft: ±	1.00
Permissible Sway Excursion Port/Stbd: ±	1.00

Permissible Vertical Movement: ± 0.50
Dist of Berth Target to Right of Origin: 0.0
Wind Speed Specified at Height: 10.0
Current Specified at Depth: mean

Hook/ Bollard	X-Dist to Origin	Dist to Fender Line	Ht above Pier	Allowable Load
A	49.3	5.7	0.1	60
B	47.9	-22.5	0.1	60
C	48.0	-25.0	0.1	60
D	48.1	-43.7	0.1	60
E	26.9	2.9	0.1	60
F	29.7	3.0	0.1	60
G	-25.9	3.1	0.1	60
H	-28.6	2.7	0.1	60
I	-63.2	2.9	0.1	60

Fender	X-Dist to Origin	Ht above Datum	Width Along Side	Face Contact Area (m²)
aa	-28.0	0.0	2.0	
bb	-10.0	0.0	2.0	
cc	8.6	0.0	2.0	
dd	37.8	0.0	2.0	

Fender Load-Compression Data
aa 50 100 tonnes
0.17 0.50 m

bb 50 100 tonnes
0.17 0.50 m

cc 50 100 tonnes
0.17 0.50 m

dd 50 100 tonnes
0.17 0.50 m

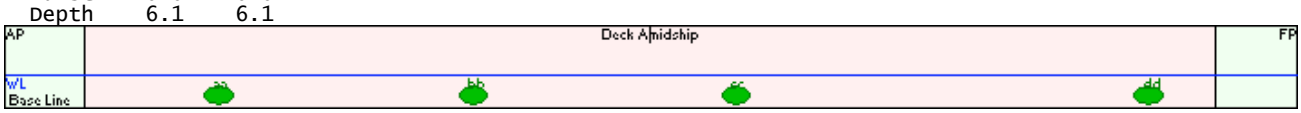
Vessel Data for VERVECE

(file L:\COMMESSE\ROS\1783\06-DOC\08 - OFFLOADING\OPTIMOOR\Eemshaven-Beatrixhaven\vervece-BH.vsl)
Units in m, mm, & tonnes
Longitudinal datum at Midship

LBP: 91.4
Breadth: 27.4
Depth: 6.1
Target: -45.7 fwd from midship and 0.0 above deck at side
End-on projected windage area: 790 above deck level
Side projected windage area: 340 above deck level
Longitudinal Centroid: -2.0 fwd midship
Fendering possible from: 0.438 LBP aft of midship
to: 0.438 LBP fwd of midship
Current drag data based on: OPTIMOOR (Generic Data)
Wind drag data based on: Pontoon

Flatside Contour

X-dist	-40.0	40.0
Depth	6.1	6.1



Line No.	Fair-Lead X	Fair-Lead Y	Ht on Deck	Dist to Winch	Brake Limit	Pre-Tension	Line Size-Type-BL	Tail Segment-1 Lgth-Size-Type-BL
1	-44.7	-10.9	0.1	0.0	50	20	76 PE 127	
2	-42.8	12.4	0.1	2.0	50	20	76 PE 127	
3	44.7	12.1	0.1	8.0	50	20	76 PE 127	
4	45.0	-10.4	0.1	8.0	50	20	76 PE 127	
5	-44.5	-12.3	0.1	2.0	50	2	60 PE 78	

6	-5.3	12.9	0.1	0.0	50	2	60	PE	78
7	15.1	-13.0	0.1	0.0	50	2	60	PE	78
8	14.8	12.8	0.1	0.0	50	2	60	PE	78

Codes for Types of Line:
PE: PolyEster (new)

Static Mooring Response for VERVECE at BH long-term

Units in m & tonnes (file L:\COMMESSE\ROS\1783\06-DOC\08 - OFFLOADING\OPTIMOOR\Eemshaven-Beatrixhaven\LT-BH.opt)
Remarks: MOORING ARRANGEMENT LONG TERM @ BEATRIXHAVEN

Static Analysis for Time: 0700 07 Sep 2025
Water Level: 1.50 above Datum
Draft: 2.5
Trim: 0.0
Bottom Clearance: 9.0

Deck Level at Target: 0.6 above pier
Wind Speed: 63 knots
Wind Direction: All° to Berth X-axis (solid pier shields wind)

Fwd Offset of Vessel Target: 0.0 from Berth Target
Total End-On Windage Area: 889
Total Side Windage Area: 669

	Longitudinal	Transverse	Yaw Moment/LBP
Target Moves(min and max):	0.0 fwd	0.1 inw	0.0° stbd	0.0 up
	0.0 fwd	-0.2 out	-0.5° stbd	0.0 up

Line to Bollard	Pull -in	Tot.Line Length	In-Line ±Motion	Winch Slippage	Worst Directn	Line Tension	Percent Strength
1-I	2.80	30.7			200°	43.9	35%
2-H	2.20	13.9			0°	31.1	24%
3-A	2.00	14.3			350°	25.4	20%
4-C	1.40	9.2			160°	31.6	25%

Fender	Thrust	Compression	Pressure	Contact Area
aa	54	0.20		
bb	26	0.09		
cc	19	0.06		
dd	15	0.05		

Hook/ Bollard	X-Force	Y-Force	Other X-Load	Other Y-Load	Total Horiz Force	Direction in Plan	Uplift
A	-11.7	22.8			25.3	-27°	1.8
C	30.3	-9.9			30.7	99°	7.3
H	-29.8	8.9			31.1	-73°	1.3
I	29.5	32.4			43.8	42°	0.7

Approximate natural periods
Surge: 23 Sway: 14 secs

OPTIMOOR Version 6.2.8 Tension Technology International © 31 March 2013

Figure 5-2: OPTIMOOR results

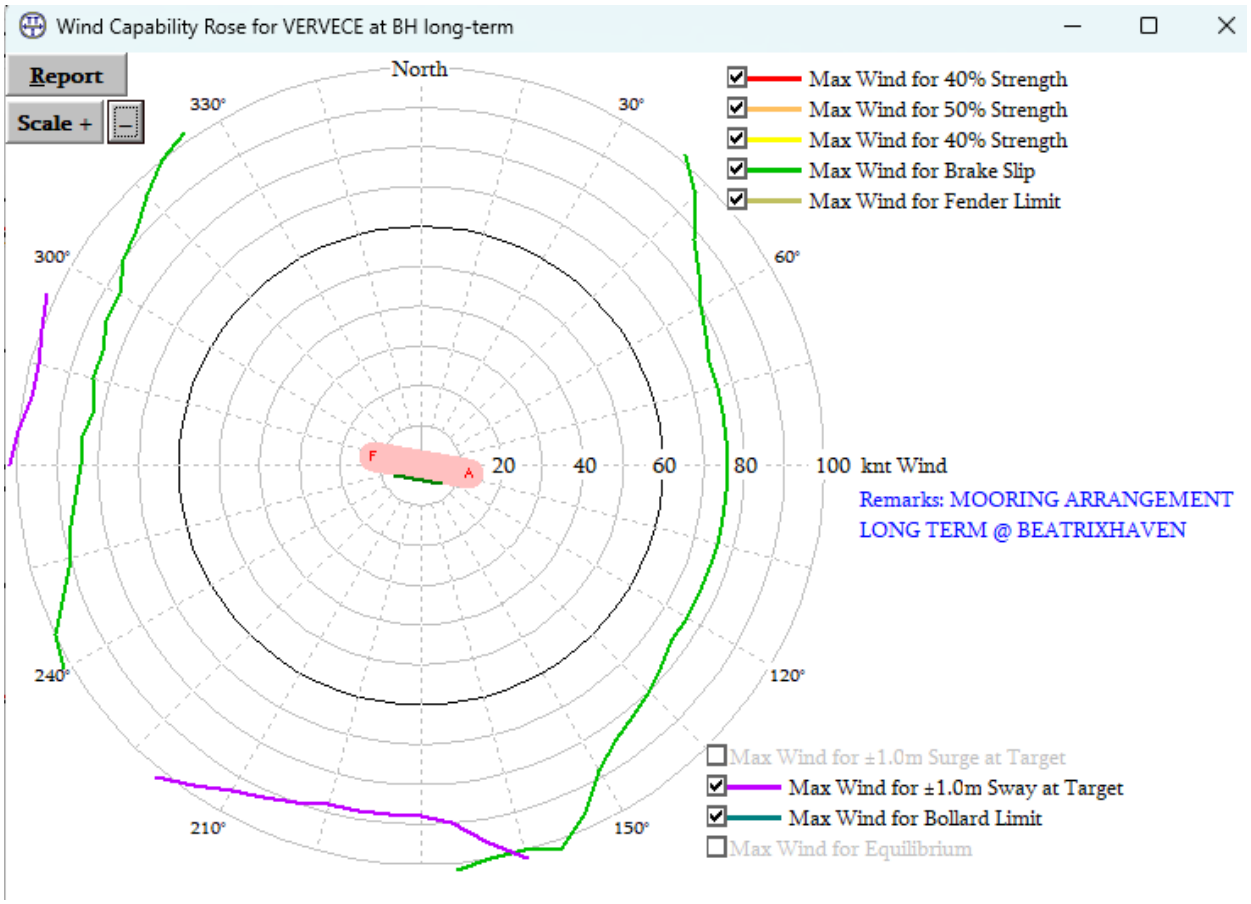


Figure 5-3: wind rose – max allowable wind speed per heading

5.1.1 Summary Table

Maximum Fender compression = 54 t < 100 t UC = 0.54

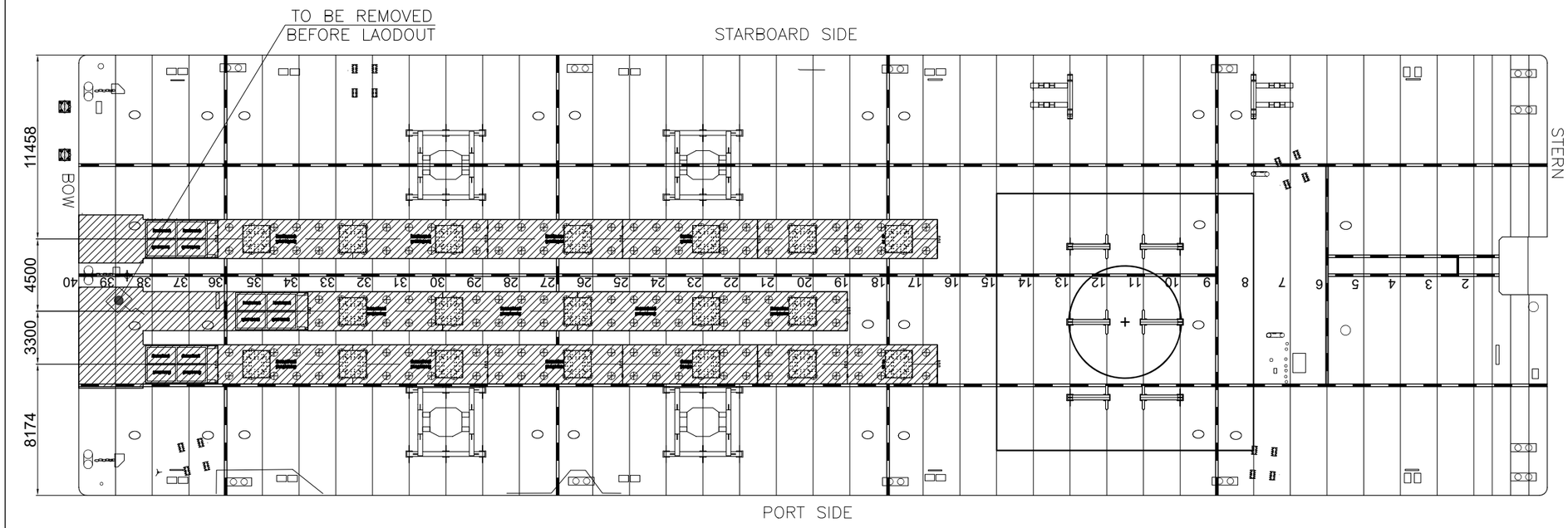
Maximum Line Tension = 44 t < 150 / 3 = 50 t UC = 0.88

Required winch pulling capacity = 20 t
Required brake limit = 50 ton
Requested counterweight = 50*0.30 friction = 150 ton
Sheeve n. 4 passes SWL = 50 ton

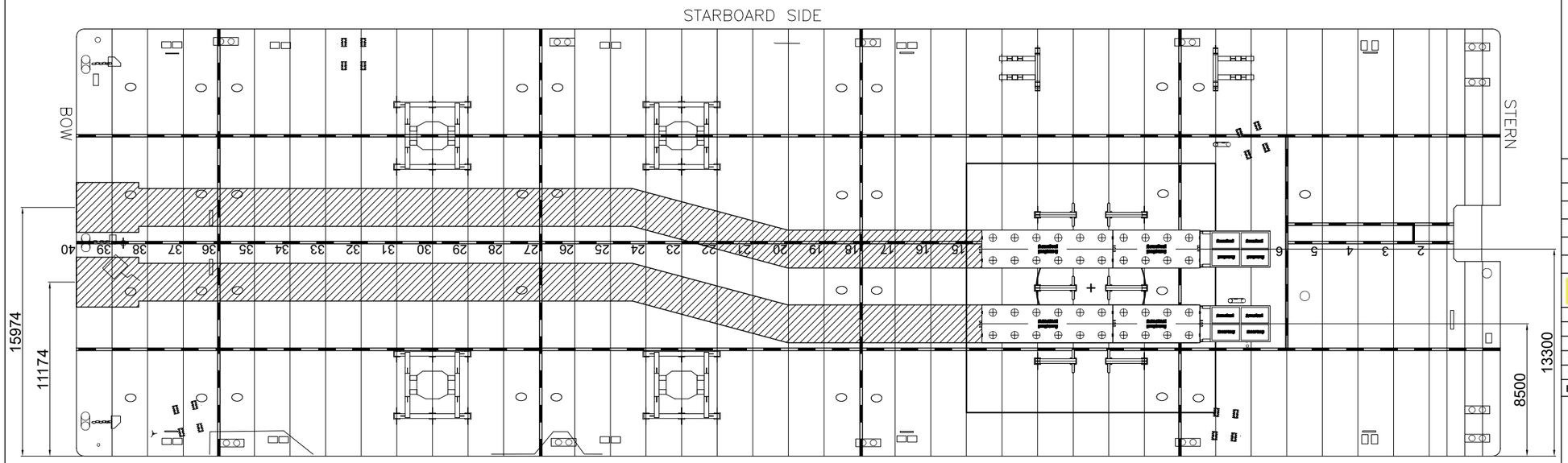
Maximum Bollard force = 44 t < 60 t (allowable) UC = 0.65

ATTACHMENT H – SPMT METHOD STATEMENT FOR BLPH & TP

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TOPSIDE LOAD-IN



TP LOAD-IN

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/08/25	AB	FC	CA	ISSUED FOR CONSTRUCTION
00	22/08/25	GS	FC	CA	ISSUED FOR CONSTRUCTION

TECON

CROSSWIND

ROSETTI MARINO

TITLE :
BASE LOAD POWER HUB (BLPH)
LOAD-IN TOPSIDE & TP
SPMT PATH ON BARGE

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK . | SCALE

DRAWN G.SEGURINI | CHECKED F.CERONI | APPROVED C.ANTONELLINI | DATE 22/08/25

A1 | DRAWING NO. 123A90-FDL-MT-DD-00807-01 | SHEET 001 | REV. 01

ROSETTI MARINO S-25-71129

Load In TP and Topside
DESIGN BRIEF PL0001



-	14/08/2025	First issue	ENG	B.R.	K.N.	M.v.H.
Rev.	Date	Description	Dept.	Edited	Verified	Approved

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1 GENERAL

The purpose of this document is to provide the client with the Design Brief that will be applied as basis to the detailed engineering for the Load In of the TP, Topside and caisson frame, at the BUSS yard in Eemshaven – The Netherlands.

It provides information regarding design codes and standards, loading, design factors and materials.

The Load Ins will be performed using Self Propelled Modular Trailers (SPMT's). Using the hydraulic lifting capability of these trailers the TP and Topside will be picked up from their grillages and driven from the barge. On the yard, both modules will be set down on supports.
The Caisson Frame will be lifted off the barge by client.

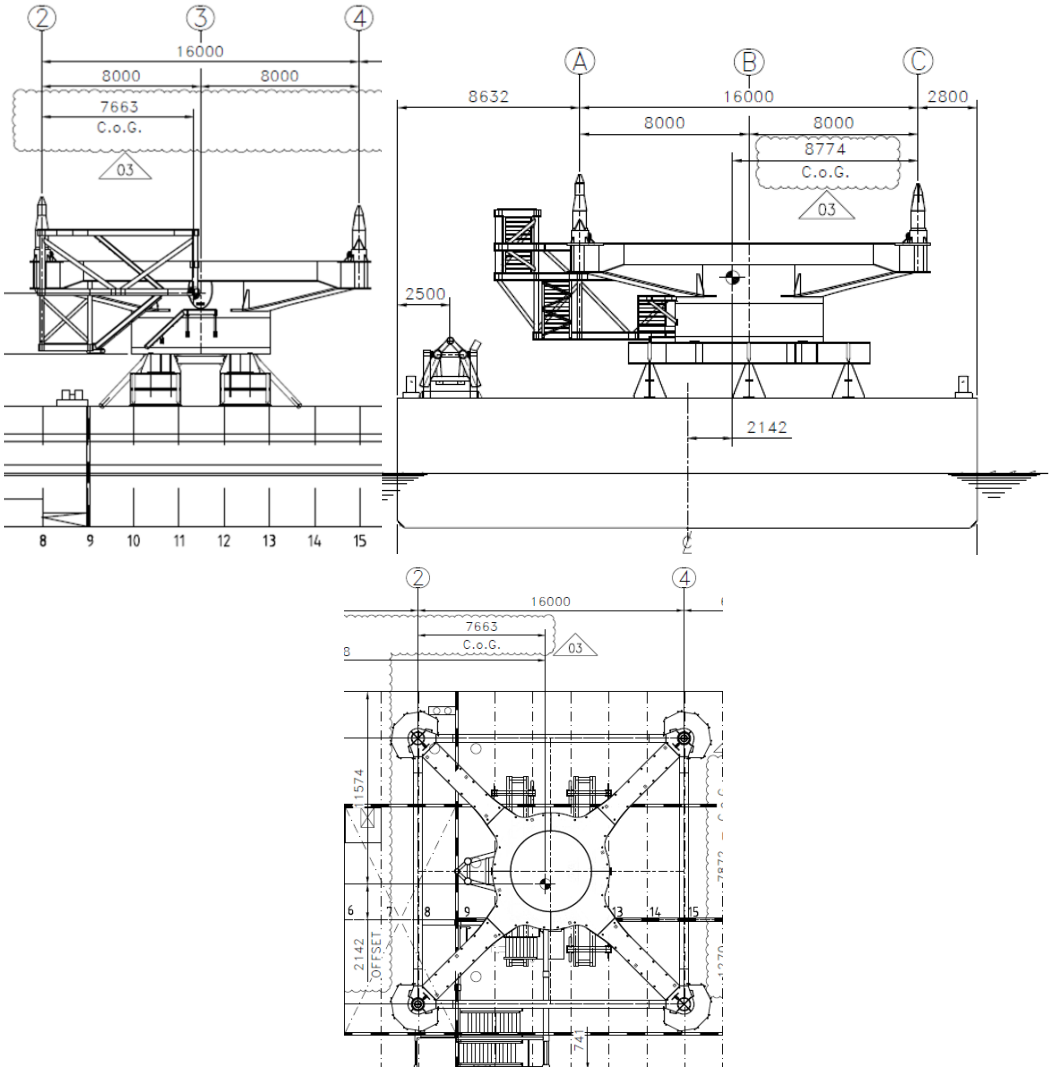


Figure 1-1. Stowage plan TP

Length	≈ 19.40 m
Width	≈ 21.70 m
Height	≈ 7.90m
Weight	254.5 t (incl 3% WCF and upper grillage)

Centre Of Gravity (wrt Gridline A-2):

X-CoG	7.663 m
Y-CoG	7.226 m
Z-CoG	3.05 m

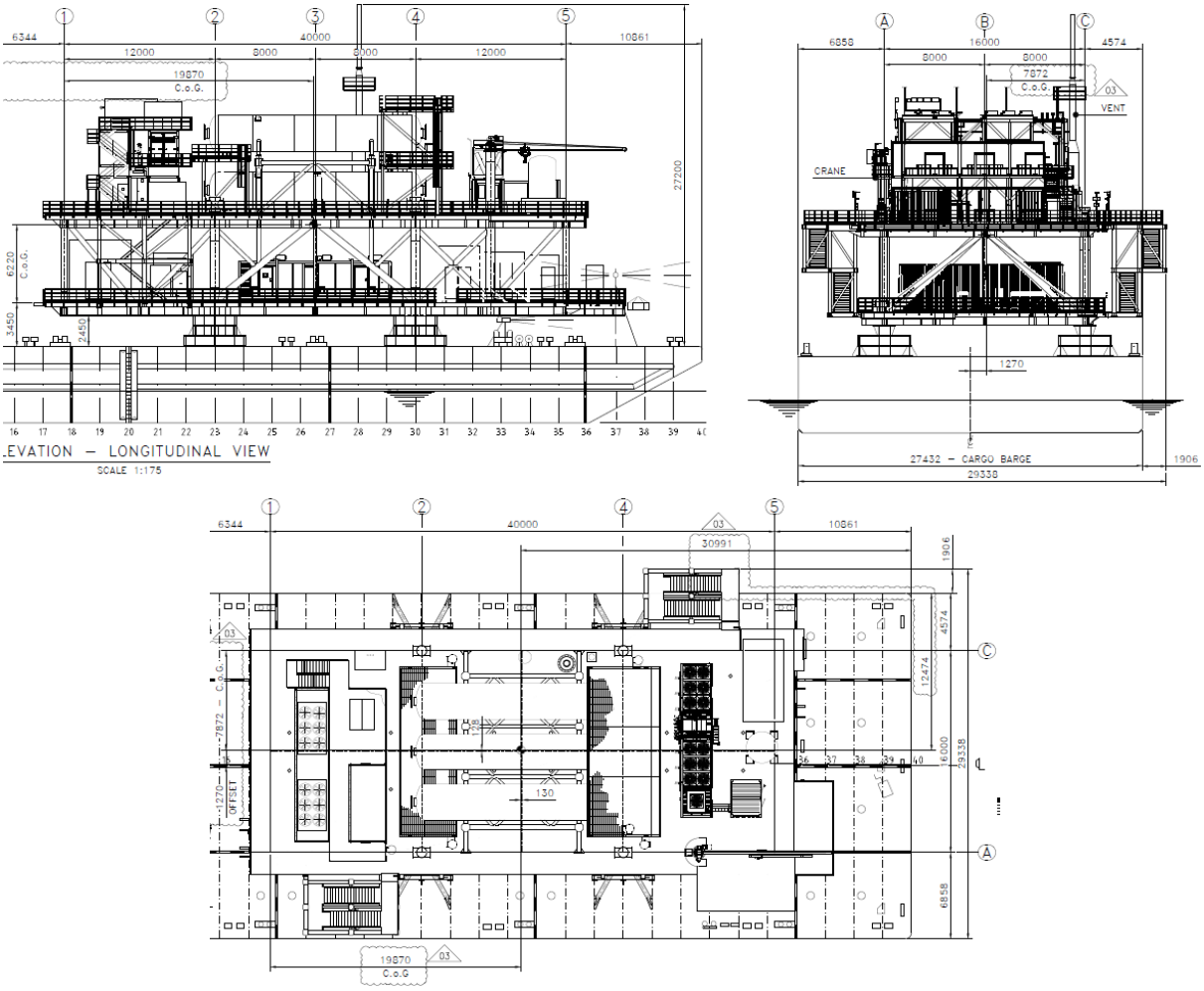


Figure 1-2. Stowage plan Topside

Length	≈ 47.05 m
Width	≈ 29.11 m
Height	≈ 24.75 m
Net weight	1700 t (incl 3% WCF)

Centre Of Gravity (wrt gridline A-1):

X-CoG	19.870 m
Y-CoG	8.128 m
Z-CoG	7.220 m

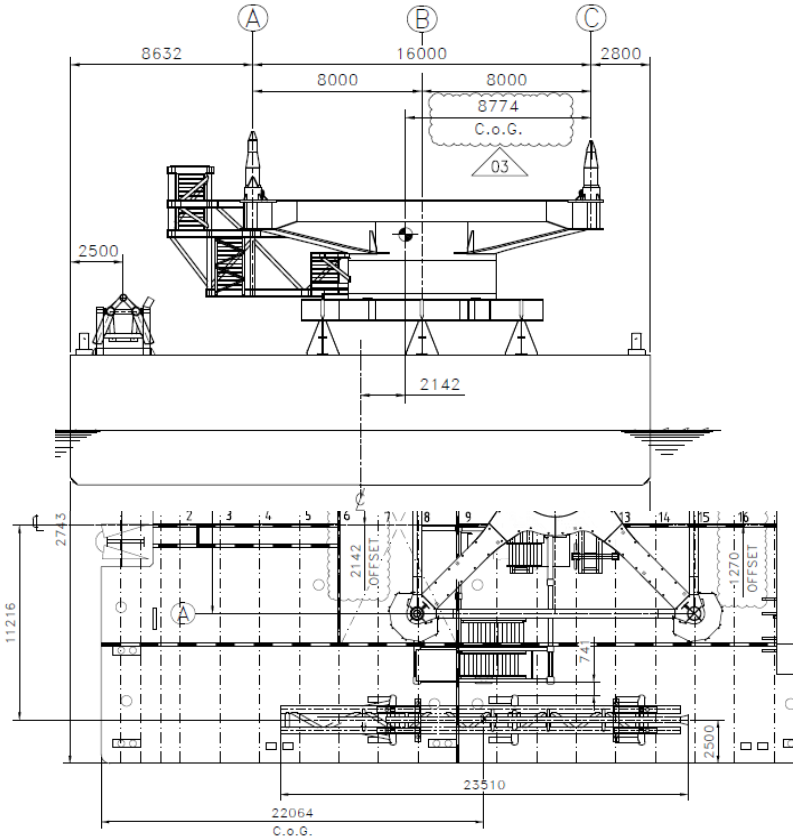


Figure 1-3. Stowage plan Caisson frame

Length	≈ 23.5 m
Width	≈ 2.9 m
Height	≈ 2.4 m
Net weight	30 t (incl 10% WCF)

Centre Of Gravity:

X-CoG	11.709 m
Y-CoG	0 m
Z-CoG	1.1 m

1.1 Reference documents

Standards:
DNVGL-ST-N001: Marine operations and marine warranty: Class 1 Load-Out
EN 1990: Basis of structural design (2002)
EN 1993-1-1: Design of steel structures - Part 1-1: General rules (2005)
EN 1993-1-5: Design of steel structures - Part 1-5: Plated structural elements (2006)
EN 1993-1-8: Design of steel structures - Part 1-8: Design of joints (2006)
EN 10025: European structural steel standard
Client documents:
123A90-DDL-TI-DD-99015_03: Barge layout, weight & COG
Vervece – Brochure
VERVECE-Loading and stability book
Tidal chart - Eemshaven September-2025
000099-G003_rev0 - Topside at BTE Terminal - Transport Route Proposal + ground bearing
000099-G004_rev0 - Topside at BTE Terminal - Support Arrangement
000099-G005_rev2 - Topside at BTE Terminal - Final Position Front View
000099-G009_rev0 - Topside at BTE Terminal - Transport Route Area
Appendix_5_-_att_3_Cross_section_Heavy_Load_Quay_Beatrixhaven (1)
BTE General Layout - Rev.17
Quay Datasheet
123A90-FDL-MT-DD-00806-00: Mooring arrangement
123A90-FDL-MT-DD-00800-00 ~ 123A90-FDL-MT-DD-00805-00: Load in sequence

1.2 Load factors

Combination of design loads	Load Categories		
	G	Q	E
a)	1,3	1,3	0,7
b)	1,0	1,0	1,3

Table 16 - Load Combinations ULS

Load categories are

G = permanent loads
Q = variable functional loads (live loads)
E = environmental loads (wind, snow, ice)

Figure 1-4: Combination factors according to DNVGL-ST-N001

Partial safety factor of loads

Combination factor of permanent loadings with unfavorable effect	γ = 1,35
Combination factor of permanent loadings with favorable effect	γ = 0,90
Combination factor of variable loadings with unfavorable effect	γ = 1,50
Combination factor of variable loadings with favorable effect	γ = 0,00

1.3 Material and connection factors

Resistance of cross-sections	γ_{M0} = 1,00
Resistance of members to instability assessed by member checks	γ_{M1} = 1,00
Resistance of cross-sections in tension to fracture	γ_{M2} = 1,25

Partial safety factor of joints

Bolt resistance	γ_{M2} = 1,25
Weld resistance	γ_{M2} = 1,25
Pin resistance	γ_{M2} = 1,25

2 EQUIPMENT

The following main equipment is used during the operation:

- Grillages & Load spreading
- Self-Propelled Modular Transporters (SPMT)
- Linkspans
- Barge

2.1 Steel

The steel used is generally grade S355 unless noted otherwise. (EN 1993-1-1, EN 10025-2, EN 10025-6, EN 10137)

Table 1. Nominal Values of yield strength and ultimate tensile strength for hot rolled structural steel

Steel grade	Nominal thickness of the element t [mm]					
	t ≤ 16 mm		16 mm < t ≤ 40 mm		40 mm < t ≤ 80 mm	
	f_y [N/mm²]	f_u [N/mm²]	f_y [N/mm²]	f_u [N/mm²]	f_y [N/mm²]	f_u [N/mm²]
S 235	235	360	225	360	215	360
S 275	275	430	265	410	255	410
S 355	355	510	345	470	335	470

Steel grade	Nominal thickness of the element t [mm]			
	t ≤ 50 mm		50 mm < t ≤ 100 mm	
	f_y [N/mm²]	f_u [N/mm²]	f_y [N/mm²]	f_u [N/mm²]
S 460	460	550	440	550
S 690	690	770	650	760

Nominal values of the yield strength and the ultimate tensile strength for bolts according to Eurocode EN 1993-1-8, table 3.1.

Table 2. Nominal values of the yield strength and ultimate tensile strength for bolts

Bolt grade	4.6	5.6	6.8	8.8	10.9	12.9
f_{yb} [N/mm²]	240	300	480	640	900	1080
f_{ub} [N/mm²]	400	500	600	800	1000	1200

The nominal values of the yield and tensile strength of common used alloy steel grades for pin connections are tabulated below. The material properties are in accordance with the European standard EN 10083-3.

25CrMo4 / 25CrMoS4

Nominal diameter [mm]	to 16	16-40	40-100	100-160	160-250
Upper yield strength R_e [N/mm²]	700	600	450	400	-
Tensile strength R_m [N/mm²]	900	800	700	650	-

42CrMo4 / 42CrMo4

Nominal diameter [mm]	to 16	16-40	40-100	100-160	160-250
Upper yield strength R_e [N/mm²]	900	750	650	550	500
Tensile strength R_m [N/mm²]	1100	1000	900	800	750

34CrNiMo6

Nominal diameter [mm]	to 16	16-40	40-100	100-160	160-250
Upper yield strength R_e [N/mm²]	1000	900	800	700	600
Tensile strength R_m [N/mm²]	1200	1100	1000	900	800

30CrNiMo8

Nominal diameter [mm]	to 16	16-40	40-100	100-160	160-250	250-330
Upper yield strength R_e [N/mm²]	1050	1050	900	800	700	630
Tensile strength R_m [N/mm²]	1250	1250	1000	1000	900	850

2.2 Grillages & Load spreading

Grillages are supplied by client

2.2.1 TP

Lower Grillage:

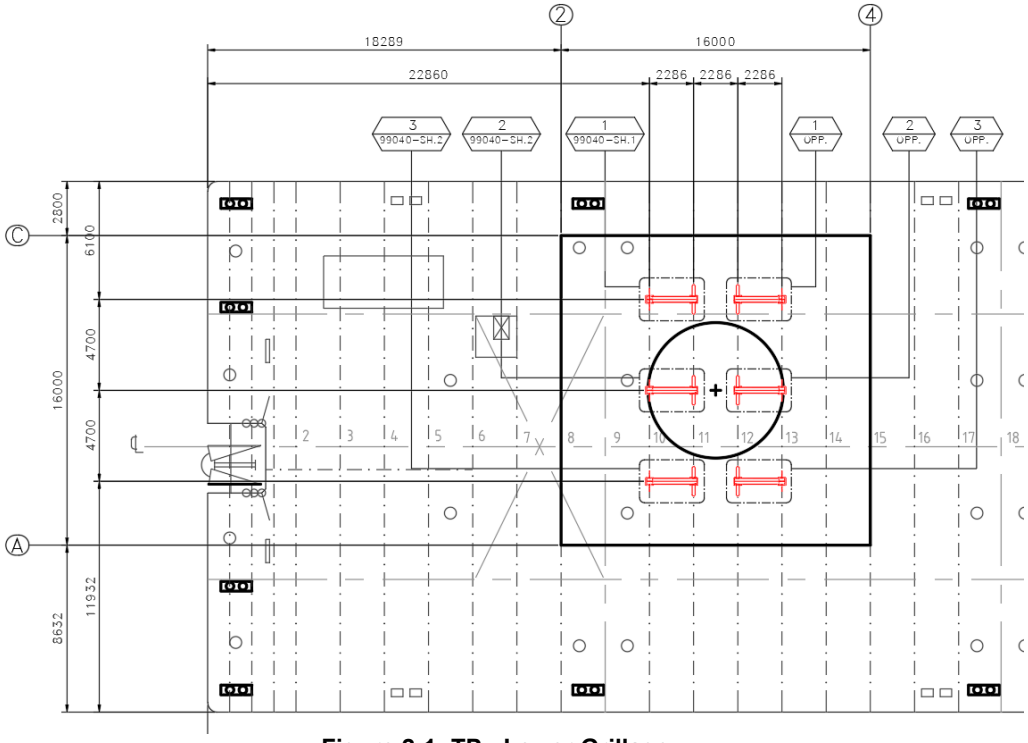


Figure 2-1: TP - Lower Grillage

Weight	45 t
COG x	26.289 m
COG y	2.916 m (PS)
COG z	7.0 m

Upper Grillage
Weight included in TP weight.

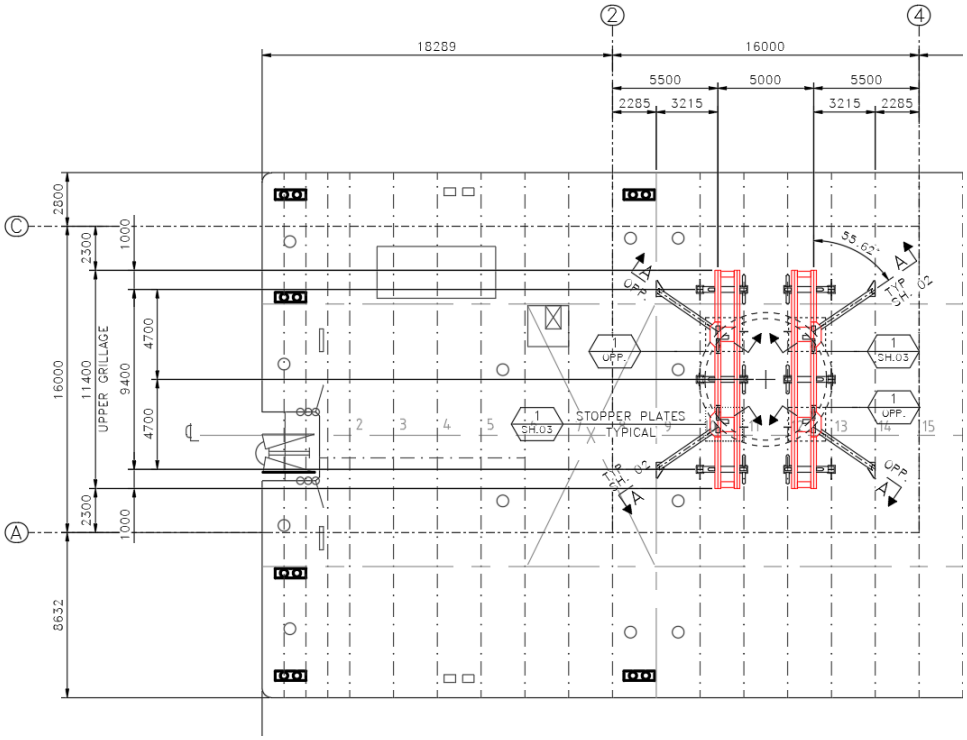


Figure 2-2: TP - Upper grillage

Sea fastening (to be removed by client)

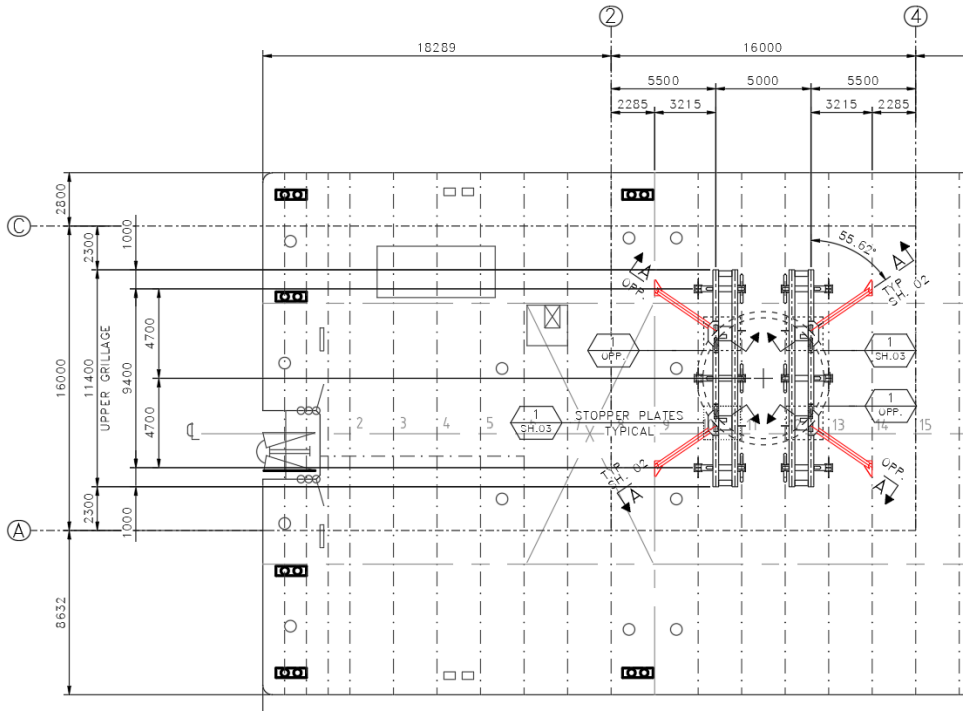


Figure 2-3: TP - Sea fastening

2.2.2 Topside

Lower grillage:

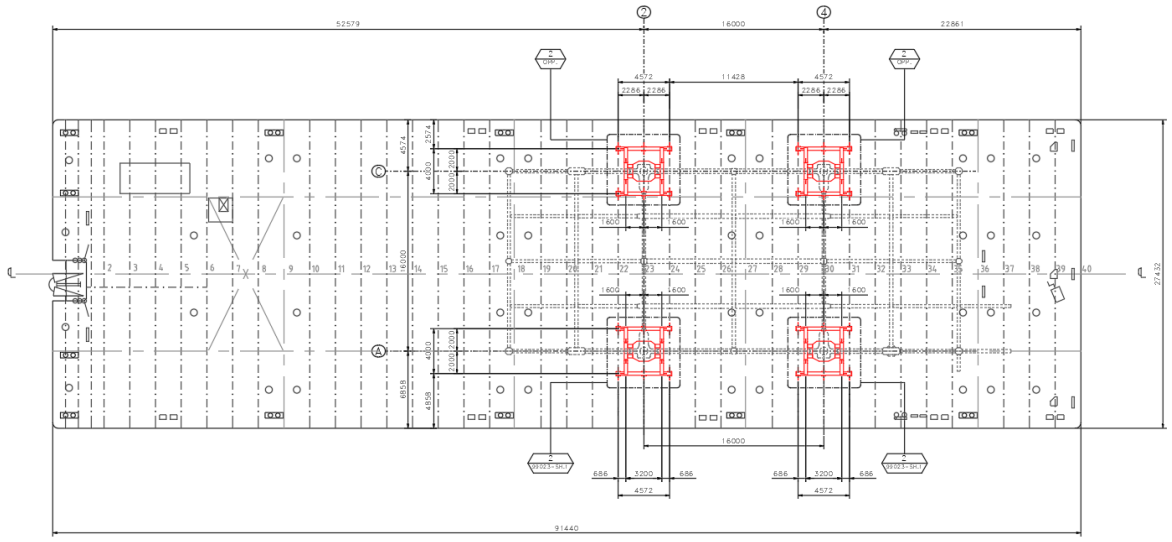


Figure 2-4: Topside - Lower Grillage

Weight	75 t
COG x	60.58 m
COG y	1.142 m (PS)
COG z	7.3 m

Sea fastening (to be removed by client)

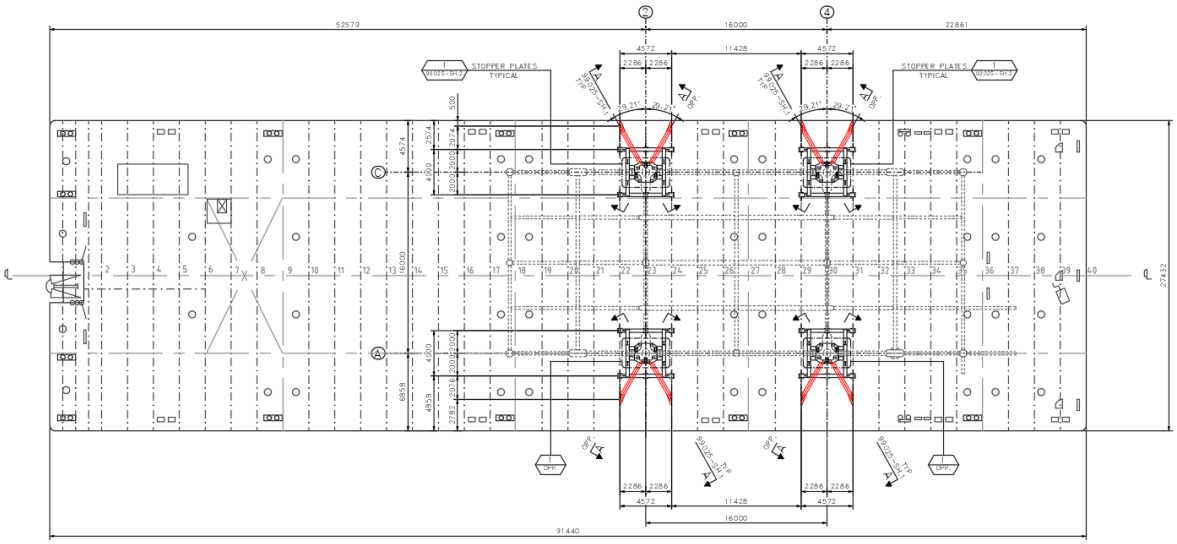


Figure 2-5: Topside – Sea fastening

2.2.3 Caisson Frame

Grillage & Sea fastening:

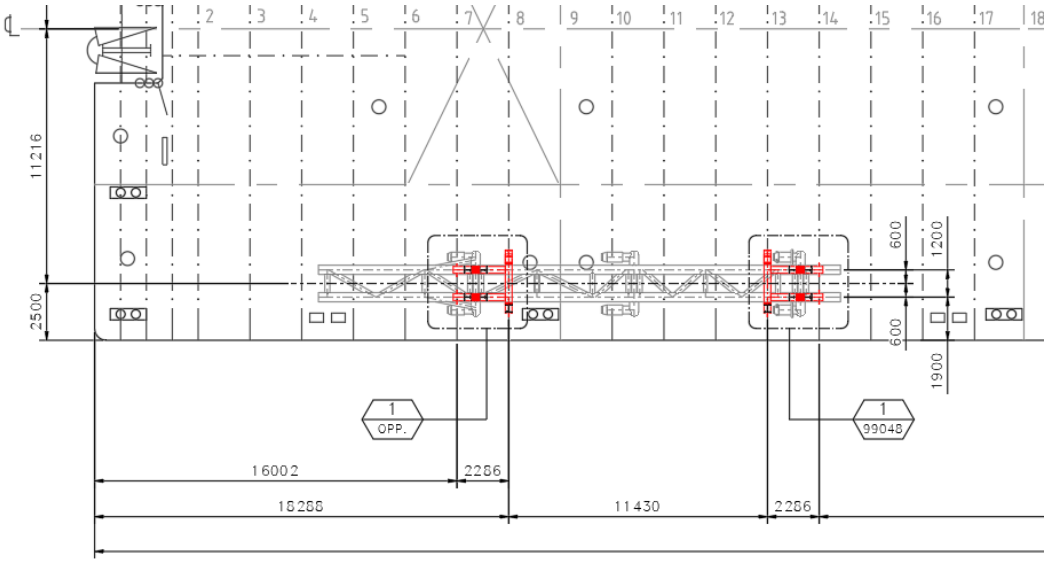


Figure 2-6: Caisson Frame – Grillage & Sea fastening

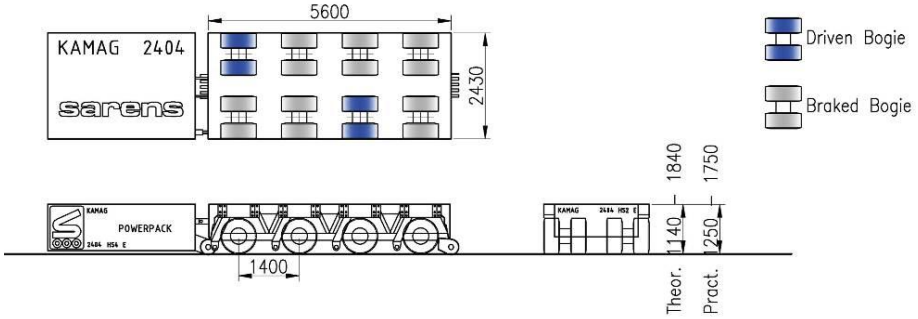
Weight	0.5 t
COG x	24 m
COG y	11.216 m (SB)
COG z	6.9 m

2.3 Self-Propelled Modular Transporters (SPMT)

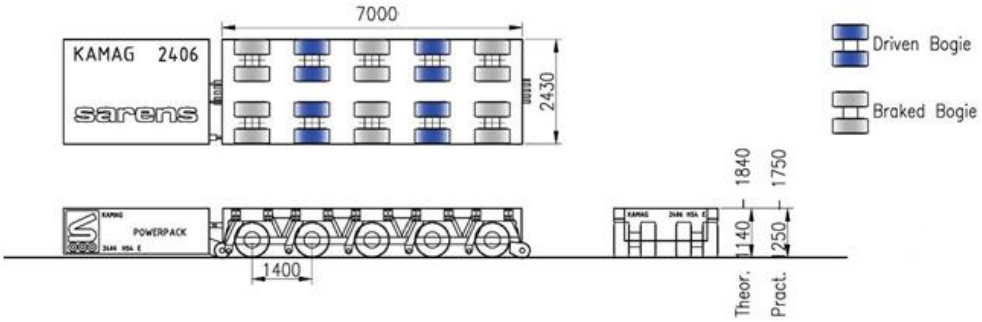
Supplied by Sarens.

Below some key information on a type of SPMT's (Kamag K24-ST) is given.

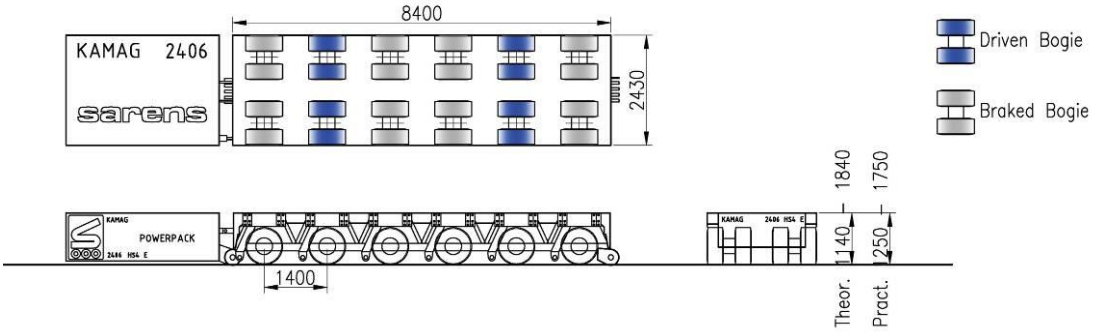
4 axle module :



5 axle module :

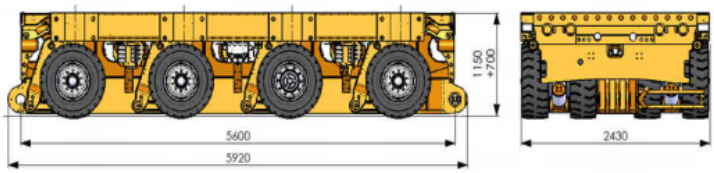


6 axle module :



Modular Transporter K24 ST

Type K2404ST 2.4.PF24



Weights and Loads:		10 km/h	5 km/h	3 km/h	1 km/h
Dead weight		19.000 kg			
Payload [1]		105.800 kg	125.000 kg	141.000 kg	173.000 kg
Permissible total weight		124.800 kg	144.000 kg	160.000 kg	192.000 kg
Permissible axle load [2]	4x	31.200 kg	36.000 kg	40.000 kg	48.000 kg

Pendulum axles:	
Pendulum axles total	8
Pendulum axles driven	2
Pendulum axles braked	4
Standard tyres	355/65-15 Continental IC40
Tyre filling	polyfill

Drive system:	
Hydrostatic drive system	
Pulling force - total	120 kN
Permissible driving speed - unloaded [4]	12 km/h
Permissible driving speed with remote control	6 km/h
Electronic overspeed protection for wheel motors	
Emergency operation function	

Brake system:	
Hydraulic-mechanical service and parking brake	
Brake force - total [3]	160 kN
Emergency operation system	

Steering system:	
Electronic multi-directional steering with rack and pinon gear	
Steering angle	+/- 130°
10 steering programms, aligment system, emergency operation	

Lifting system:	
Hydraulic controlled axle load compensation	+/- 350 mm
Total lift	700 mm
Electro-hydraulically controlled equal lifting system	
1-circuit hose break safety system	
Emergency operation system: lifting and lowering	

Dimensions:		
Total length		5.920 mm
Coupling length		5.600 mm
Total width		2.430 mm
Platform height lowered (loaded)		1.150 mm
Platform height drive position (loaded)		1.500 mm
Axle base / Track	1.400 mm /	1.450 mm

Platform - Main beam:		
Bending moment	+ 9.250 kNm	/ - 9.250 kNm
Bending moment - stretched	-	-
Hydraulic locking cylinder (1 pc.)		

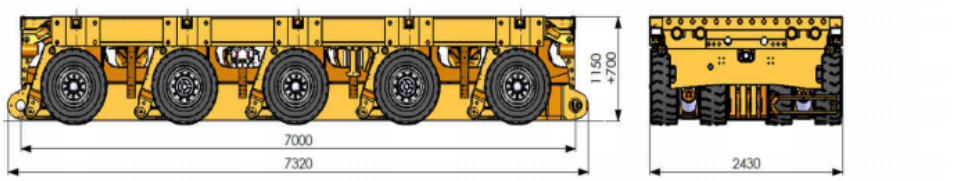
Electric / Electronic:	
Electric system	24 Volts
Electronic system via Industrial Ethernet / CAN-Bus system	
Emergency stop system w. performance level d (dual channel)	
1 emergency stop button on each side of the platform	
Side marker lights	

Painting:	
Painting in accordance with Kamag painting specification	
RAL-colour to customer's wishes (RAL 2000 standard)	
Anti-slip coating	optional

Standard accessories::
1 pc. LED working light
1 set of connections lines "end to end"
1 set of fixation part for longitudinal coupling
1 set of documentationincl. USB flash drive

Modular Transporter K24 ST

Type K2405ST 4.6.PF24



Weights and Loads:		10 km/h	5 km/h	3 km/h	1 km/h
Dead weight		22.500 kg			
Payload [1]		133.500 kg	157.500 kg	177.500 kg	217.500 kg
Permissible total weight		156.000 kg	180.000 kg	200.000 kg	240.000 kg
Permissible axle load [2]	5x	31.200 kg	36.000 kg	40.000 kg	48.000 kg

Pendulum axles:	
Pendulum axles total	10
Pendulum axles driven	4
Pendulum axles braked	6
Standard tyres	355/65-15 Continental IC40
Tyre filling	polyfill

Drive system:	
Hydrostatic drive system	
Pulling force - total	240 kN
Permissible driving speed - unloaded [4]	12 km/h
Permissible driving speed with remote control	6 km/h
Electronic overspeed protection for wheel motors	
Emergency operation function	

Brake system:	
Hydraulic-mechanical service and parking brake	
Brake force - total [3]	240 kN
Emergency operation system	

Steering system:	
Electronic multi-directional steering with rack and pinon gear	
Steering angle	+/- 130°
10 steering programms, aligment system, emergency operation	

Lifting system:	
Hydraulic controlled axle load compensation	+/- 350 mm
Total lift	700 mm
Electro-hydraulically controlled equal lifting system	
1-circuit hose break safety system	
Emergency operation system: lifting and lowering	

Dimensions:		
Total length		7.320 mm
Coupling length		7.000 mm
Total width		2.430 mm
Platform height lowered (loaded)		1.150 mm
Platform height drive position (loaded)		1.500 mm
Axle base / Track	1.400 mm /	1.450 mm

Platform - Main beam:		
Bending moment	+ 9.250 kNm	/ - 9.250 kNm
Bending moment - stretched	-	-
Hydraulic locking cylinder (1 pc.)		

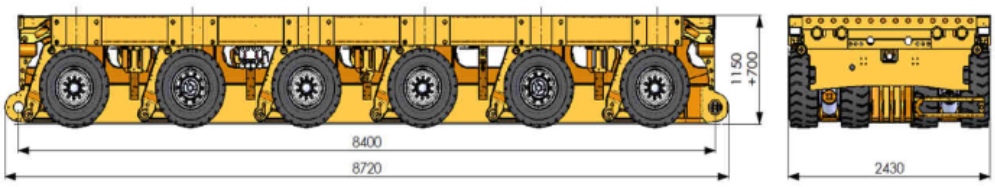
Electric / Electronic:	
Electric system	24 Volts
Electronic system via Industrial Ethernet / CAN-Bus system	
Emergency stop system w. performance level d (dual channel)	
1 emergency stop button on each side of the platform	
Side marker lights	

Painting:	
Painting in accordance with Kamag painting specification	
RAL-colour to customer's wishes (RAL 2000 standard)	
Anti-slip coating	optional

Standard accessories::
1 pc. LED working light
1 set of connections lines "end to end"
1 set of fixation part for longitudinal coupling
1 set of documentationincl. USB flash drive

Modular Transporter K24 ST

Type K2406ST 4.6.PF24



Weights and Loads:		10 km/h	5 km/h	3 km/h	1 km/h
Dead weight		27.000 kg			
Payload [1]		160.200 kg	189.000 kg	213.000 kg	261.000 kg
Permissible total weight		187.200 kg	216.000 kg	240.000 kg	288.000 kg
Permissible axle load [2]	6x	31.200 kg	36.000 kg	40.000 kg	48.000 kg

Pendulum axles:	
Pendulum axles total	12
Pendulum axles driven	4
Pendulum axles braked	6
Standard tyres	355/65-15 Continental IC40
Tyre filling	polyfill

Drive system:	
Hydrostatic drive system	
Pulling force - total	240 kN
Permissible driving speed - unloaded [4]	12 km/h
Permissible driving speed with remote control	6 km/h
Electronic overspeed protection for wheel motors	
Emergency operation function	

Brake system:	
Hydraulic-mechanical service and parking brake	
Brake force - total [3]	240 kN
Emergency operation system	

Steering system:	
Electronic multi-directional steering with rack and pinon gear	
Steering angle	+/- 130°
10 steering programms, aligment system, emergency operation	

Lifting system:	
Hydraulic controlled axle load compensation	+/- 350 mm
Total lift	700 mm
Electro-hydraulically controlled equal lifting system	
1-circuit hose break safety system	
Emergency operation system: lifting and lowering	

Dimensions:	
Total length	8.720 mm
Coupling length	8.000 mm
Total width	2.430 mm
Platform height lowered (loaded)	1.150 mm
Platform height drive position (loaded)	1.500 mm
Axle base / Track	1.400 mm / 1.450 mm

Platform - Main beam:		
Bending moment	+ 9.250 kNm	/ - 9.250 kNm
Bending moment - stretched	-	-
Hydraulic locking cylinder (1 pc.)		

Electric / Electronic:	
Electric system	24 Volts
Electronic system via Industrial Ethernet / CAN-Bus system	
Emergency stop system w. performance level d (dual channel)	
1 emergency stop button on each side of the platform	
Side marker lights	

Painting:	
Painting in accordance with Kamag painting specification	
RAL-colour to customer's wishes (RAL 2000 standard)	
Anti-slip coating	optional

Standard accessories::
1 pc. LED working light
1 set of connections lines "end to end"
1 set of fixation part for longitudinal coupling
1 set of documentationincl. USB flash drive

2.4 Linkspans

Supplied by Sarens.

For the connection between the barge and the quay, RoRo Ramps with a length of for example 5,8 m are used. A general view of the RoRo Ramps is shown in the figure below.

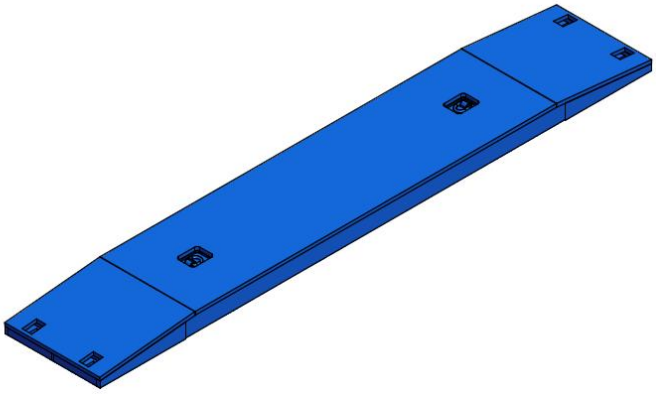


Figure 2-7: Linkspan 5.8 m

The complete RoRo Ramp configuration consists of three main components:

- Wedges with cam
- Linkspan
- Wedges without cam

The wedges with cams are welded to the barge deck. The ramps are to be positioned in such a way that the cams fit in the foreseen slots of the ramps. Below a typical wedge with cams (right) and without cams (left) is shown:

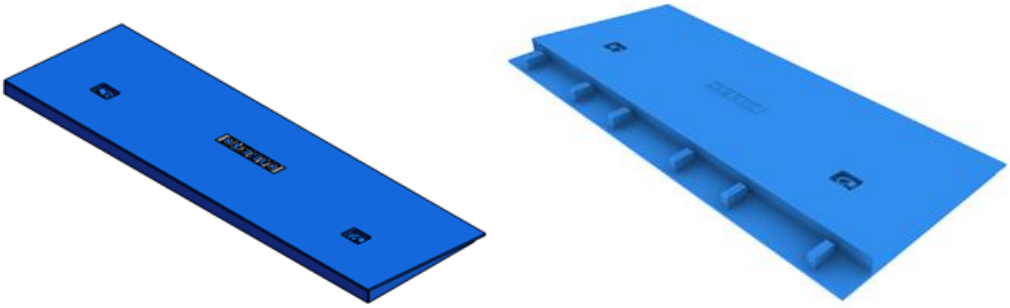


Figure 2-8: Linkspan Wedges

2.5 Barge: Vervece

Supplied by client.

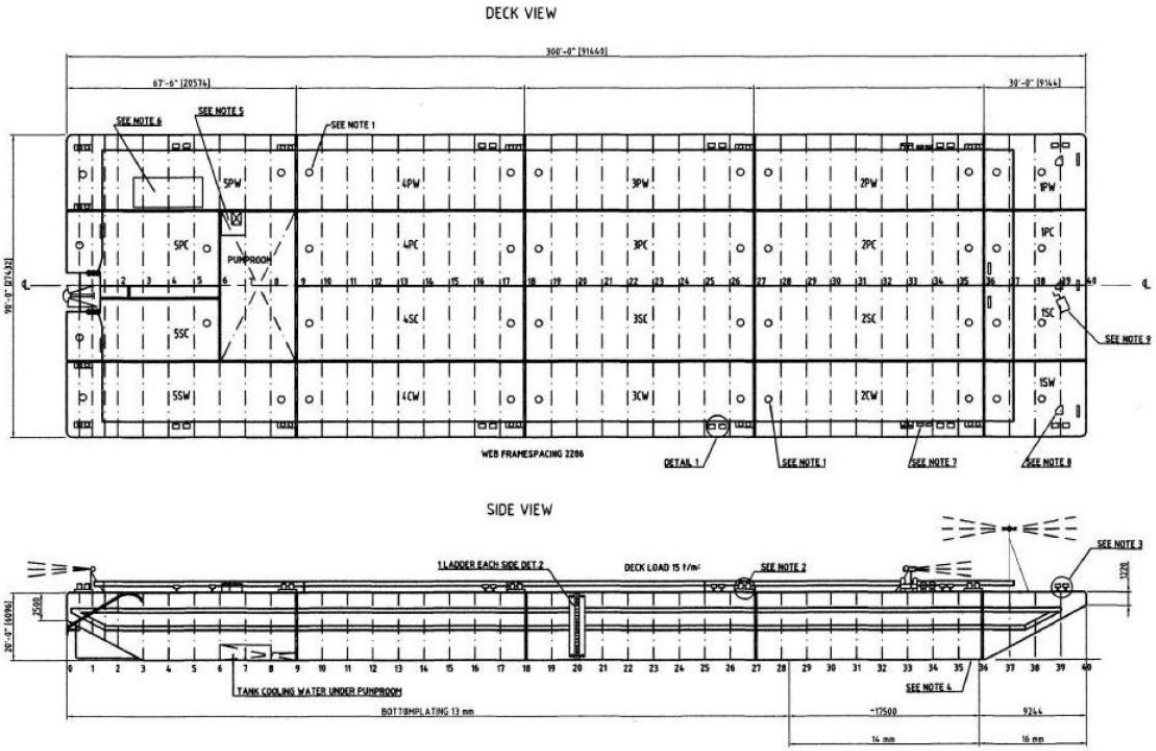


Figure 2-9: Vervece barge - General arrangement

Length	91.44 m
Breadth	27.432 m
Depth	6.096 m
Displacement	11573 t
Light Ship Weight	1833 t
Deadweight	9700 t
LCG (reference midship)	1.301 m aft of midship
TCG (reference center line)	on centerline
VCG (reference bottom line)	3.524m from bottom line
Deck load capacity (general)	25 t/m²
Water ballast tanks	13645.94 m³
Internal ballasting system	2 x 600m³
Max allowed bending moment Still water	26702 tm
Max allowed shear force Still water	6150 t
Min bollard capacity	205 kN

3 SITE

3.1 Quay layout

The Beatrixhaven quay will be used to execute the load in.

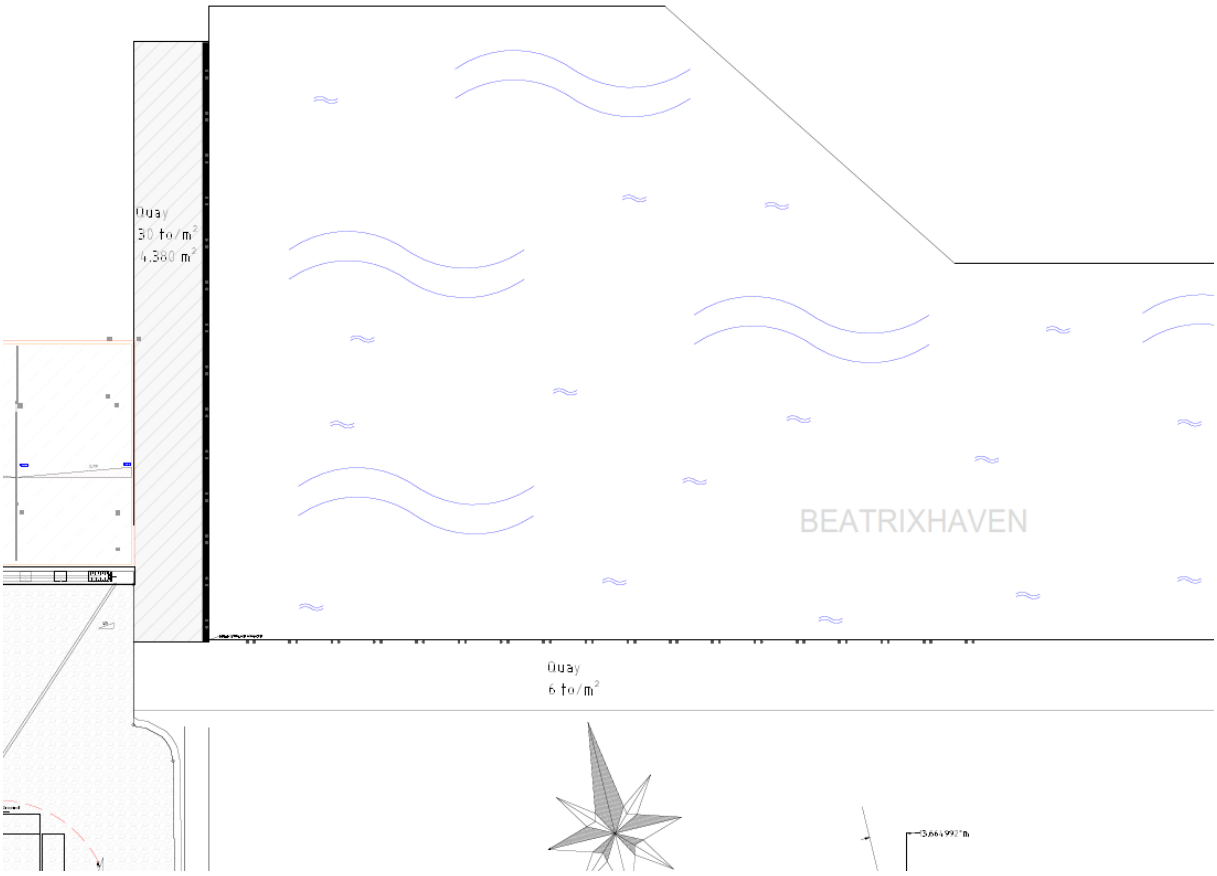


Figure 3-1: Beatrixhaven - Heavy load quay

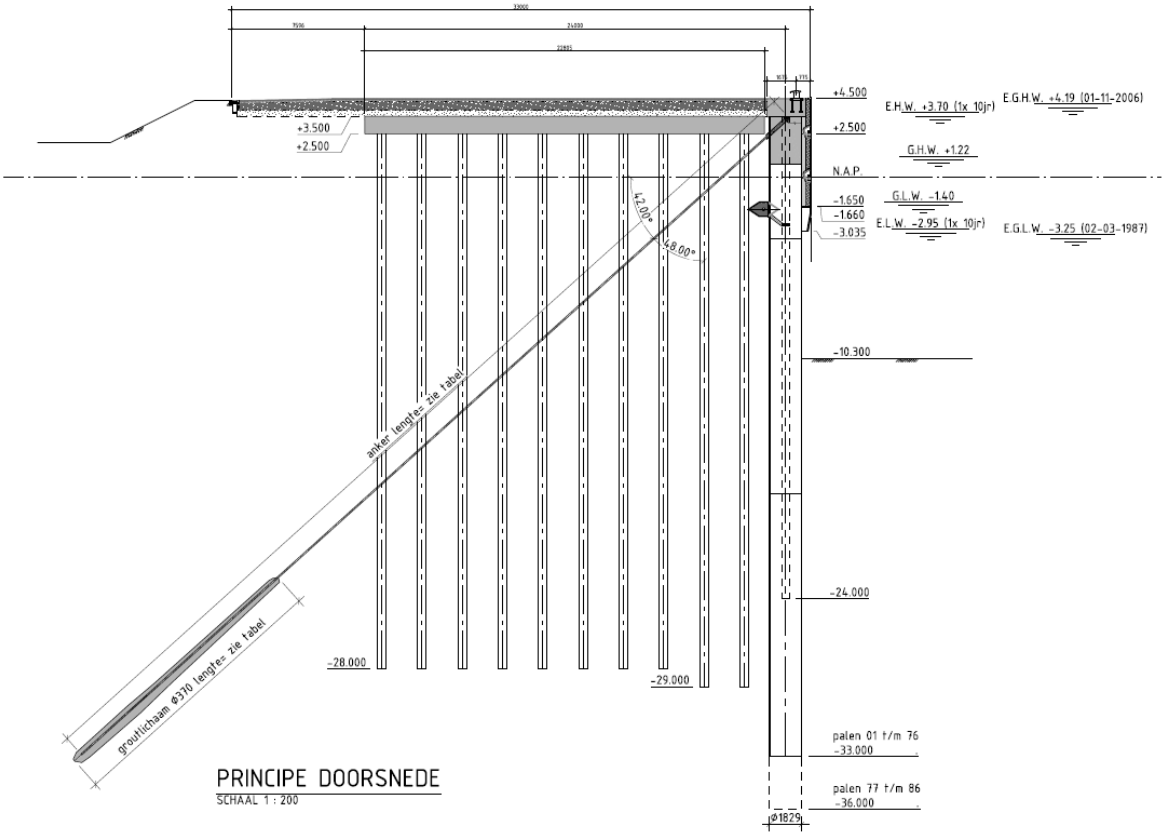


Figure 3-2: Beatrixhaven - Cross section Heavy load quay

3.2 Tide

The load in will be executed in September 2025. The tide table is shown below.

Eemshaven

Hoog- en laagwaterstanden en -tijdstippen

September 2025

datum	uu:mm	HW cm NAP	LW cm NAP	datum	uu:mm	HW cm NAP	LW cm NAP	datum	uu:mm	HW cm NAP	LW cm NAP
1	*5:04*	97		**11**	*2:24*	123		**21**	*6:04*		-137
ma	*11:27*		-106	do	*8:49*		-156	zo	*12:01*	155	
	17:32	91			*14:32*	154		*NM 21:54*	*18:33*		-156
	23:48		-97		*21:15*		-154				
2	*6:06*	91		**12**	*2:56*	121		**22**	*0:39*	125	
di	*12:20*		-91	vr	*9:28*		-154	ma	*6:45*		-140
	18:42	81			*15:12*	148			*12:36*	152	
					21:52		-143		*19:11*		-149
3	*0:47*		-82	**13**	*3:31*	119		**23**	*1:09*	122	
wo	*7:33*	90		za	*10:05*		-149	di	*7:20*		-140
	13:38		-79		*15:55*	137			*13:05*	149	
	20:15	81			*22:27*		-129		*19:42*		-142
4	*2:19*		-75	**14**	*4:12*	116		**24**	*1:30*	121	
do	*8:58*	101		zo	*10:45*		-138	wo	*7:51*		-141
	15:26		-90	*LK 12:33*	*16:44*	122			*13:34*	145	
	21:42	92			*23:06*		-113		*20:09*		-138
5	*3:58*		-90	**15**	*5:04*	111		**25**	*1:54*	123	
vr	*10:12*	119		ma	*11:32*		-123	do	*8:19*		-142
	16:39		-113		*17:48*	105			*14:05*	139	
	22:51	107			*23:57*		-95		*20:35*		-135
6	*5:03*		-109	**16**	*6:16*	106		**26**	*2:22*	123	
za	*11:09*	135		di	*12:38*		-107	vr	*8:48*		-139
	17:38		-132		*19:11*	95			*14:35*	130	
	23:44	118							*21:01*		-129
7	*5:57*		-124	**17**	*1:14*		-80	**27**	*2:49*	120	
zo	*11:56*	146		wo	*7:39*	108		za	*9:15*		-132
VM 20:08	*18:29*		-147		*14:13*		-105		*15:02*	119	
					20:41	97			*21:26*		-122
8	*0:30*	123		**18**	*2:51*		-86	**28**	*3:13*	116	
ma	*6:44*		-136	do	*9:07*	121		zo	*9:42*		-124
	12:38	153			*15:42*		-121		*15:29*	109	
	19:14		-156		*22:03*	109			*21:51*		-115
9	*1:12*	124		**19**	*4:11*		-106	**29**	*3:37*	113	
di	*7:28*		-145	vr	*10:19*	139		ma	*10:11*		-116
	13:16	156			*16:55*		-143		*16:02*	100	
	19:56		-161		*23:07*	122			*22:22*		-108
10	*1:50*	124		**20**	*5:14*		-125	**30**	*4:15*	108	
wo	*8:10*		-152	za	*11:16*	151		di	*10:50*		-106
	13:54	157			*17:49*		-156	*EK 1:53*	*16:53*	89	
	20:37		-160		*23:58*	127			*23:06*		-96

Referentievlak: NAP
LAT = NAP-192 cm

Nederlandse tijd
Cursief gedrukte tijdstippen zijn in ZOMERTIJD

4 LOADINGS

The loads are divided in groups
- Permanent load
- Variable load
  - Environmental load
  - Operational load

4.1 Permanent Load

TP weight = 254.5t (including upper grillage and 3% WCF)

Topside weight = 1700t (including 3% WCF)

A CoG envelope of x ±250 mm; y ±250 mm and z +250mm is considered for the TP and x ±500 mm; y ±300 mm and z +500mm for the Topside to accommodate any worst case deviation of the theoretical CoG position.

4.2 Environmental Load

4.2.1 Wind

An operational wind speed limit of 12 m/s (10 min average at 10 m) will be accounted for in the calculations. A factor of 1.25 is applied to this wind speed to convert to 3s gust, in accordance with table 3-3 in DNVGL-ST-N001. This corresponds with a wind speed limit of 15 m/s (3s gust at 10 m).

Table 3-3 Wind profile, $U(z, t_{mean})/ U(z_0, t_{0,mean})$

z (m)	Averaging time				
	3 s	15 s	1 min.	10 min.	1 hour
1	0.93	0.86	0.79	0.69	0.60
5	1.15	1.08	1.01	0.91	0.82
10	1.25	1.17	1.11	1.00	0.92
20	1.34	1.27	1.20	1.10	1.01
50	1.47	1.39	1.33	1.22	1.14
100	1.56	1.49	1.42	1.32	1.23

The SPMT transport is therefore calculated with a limit of **15.0 m/s (3s gust at 10m height)** equaling 30 knots**.**

$$F_{wind} = \frac{1}{2}\rho V^2 A C_f = \frac{1}{2} \cdot 1.225\ kg/m^3 \cdot (12\ m/s)^2 \cdot A \cdot C_f$$

A Cf coeficient of 1,2 is assumed for both TP and Topside.

TP area :
- Longidutinal = 85m²
- Transveral = 10m²

Topside area
- Longidutinal = 662m²
- Transveral = 382m²

4.3 Operational loads

4.3.1 Acceleration

SPMT longitudinal acceleration value considered is 0.5m/s².
SPMT transverse acceleration value considered is 0.2 m/s².

4.3.2 Slope

A longitudinal and transverse slope of 1° (1.7%) is considered for the transport calculations.
To satisfy DNV-ST-N001 and additional slope of 2° is added in both directions.

5 BALLASTING

5.1 Load-out Class

According DNV-ST-N001.

Table 10-1 Load-out (operation) class

Tide range [1]	*Tide restricted?* [2]	*Weather restricted?* [3]	*Load-out Class*
Significant	Yes	No/Yes	1
Significant	No	Yes	2
Significant	No	No	3
Zero	No	Yes	4
Zero	No	No	5

Notes:

1) If ballasting is required in order to compensate for tide variation, then the tide range shall be defined as significant, see also [10.2.1.2] and [10.2.1.3].
2) If the ballast system cannot compensate for a complete tide cycle, then the load-out shall be defined as tide restricted.
3) If weather restrictions apply, then the load-out shall be categorized as weather restricted, see [2.6]. If there are **no** weather restrictions to the object movement/ballasting phase the load-out class may be selected accordingly.

The tide range at the load-in quay in Eemshaven is considered significant, i.e. ballasting is required in order to compensate for tide variation.

Weather restrictions (wind speed of 15m/s gusts) apply.

Therefore the load-out class will be either load class 1 or 2.

Whether the load-in is tide restricted (load-out class 1) or not (load-out class 2) is analyzed below. If the ballast system cannot compensate for a complete tide cycle, the load in shall be defined as tide restricted.

5.1.1 Vervece - Tide restriction

In this section we look at the maximum allowable low/high water levels for which Vervece can stay level with the quay. Pump capacity is not looked at during this stage. First we look at the physical limitations (barge height and tank volume) of the barge.

Dimensions:

Height Vervece	6.096m
Quay level	+4.50m NAP

Lowest allowable water level:

With the aid of the stability booklet, the barge is modelled.

Following situation is analysed as a first estimate:

- Full load on barge (all SPMT's under Topside, lower grillages, winches, …)

A minimum draft of 2.3m is calculated. With water ballast in the tanks to level the barge.

Therefore the lowest allowable water level equals +4.5m NAP – (6.096m – 2.3m) = +0.7m NAP.

Highest allowable water level:

Arbitrary a free board of at least 0.5m is deemed necessary.

Therefore the highest allowable water level equals +4.5m NAP – 0.5m = +4m NAP.

Dates on which Vervece can compensate a complete tide cycle:

On days having values in the tide tables with water levels below +0.7m NAP, the load in operation is classified as load-out class 1. Indicated in red in images below.

Since not all additional weights and final positions are known yet, further engineering is required to indicate the load-out class on days having values with water levels below +0.7m NAP + 0.75m margin (+1.45m NAP). Indicated in yellow in images below.

On all other days the load in can be classified as load-out class 2. Indicated in green in images below.

The operations will be executed between 1st and 15th of September 2025, it can be stated that the load ins are only possible during high tide, classifying them as **load-out class 1**.

Note that further detailed engineering is required to determine the exact allowable water levels during the load in.

Date	Time	HW(cm NAP)	LW(cm NAP)	Date	Time	HW(cm NAP)	LW(cm NAP)
01/09/2025	05:04	97		11/09/2025	02:24	123	
	11:27		-106		08:49		-156
	17:32	91			14:32	154	
	23:48		-97		21:15		-154
02/09/2025	06:06	91		12/09/2025	02:56	121	
	12:27		-91		09:28		-154
	18:42	81			15:12	148	
03/09/2025	00:47		-82		21:52		-143
	07:33	90		13/09/2025	03:31	119	
	13:38		-79		10:05		-149
	20:15	81			15:55	137	
04/09/2025	02:19		-75		22:27		-129
	08:58	101		14/09/2025	04:12	116	
	15:26		-90		10:45		-138
	21:42	92			16:44	122	
05/09/2025	03:58		-90		23:06		-113
	10:12	119		15/09/2025	05:04	111	
	16:39		-113		11:32		-123
	22:51	107			17:48	105	
06/09/2025	05:03		-109		23:57		-95
	11:09	135		16/09/2025	06:16	106	
	17:38		-132		12:38		-107
	23:44	118			19:11	95	
07/09/2025	05:57		-124	17/09/2025	01:14		-80
	11:56	146			07:39	108	
	18:29		-147		14:13		-105
08/09/2025	00:30	123			20:41	97	
	06:44		-136	18/09/2025	02:51		-86
	12:38	153			09:07	121	
	19:14		-156		15:42		-121
09/09/2025	01:12	124			22:03	109	
	07:28		-145	19/09/2025	04:11		-106
	13:16	156			10:19	139	
	19:56		-161		16:55		-143
10/09/2025	01:50	124			23:07	122	
	08:10		-152	20/09/2025	05:14		-125
	13:54	157			11:16	151	
	20:37		-160		17:49		-156
					23:58	127	

5.2 Ballasting systems

According DNV-ST-N001.

Table 4-2 Ballast pumping capacity requirements

Operation Class	*Normal Operation Load transfer as planned*	*Tide Compensation Load transfer unexpectedly stopped*
1	Minimum 200% capacity with intact system and minimum 120% capacity in all tanks with any one pump system failed.	Minimum 150% capacity with intact system and minimum 100% capacity in all tanks with any one pump system failed.
2	Minimum 130% capacity with intact system and minimum 100% capacity in all tanks with any one pump system failed.	As for Class 1
3	Minimum 130% capacity with intact system and a contingency plan covering pump system failure.	As for Class 1
4	As for Class 2	No requirements
5	As for Class 3	No requirements

Notes:

1) 100% pump capacity during normal operation is the capacity required to carry out the operation at the planned speed. The required pump capacity for a reduced speed could be acceptable as "100%", if ballast calculations are documented for this case, and the impact of the increased activity duration is properly taken into account.
2) 100% pump capacity during tide compensation is the capacity required to compensate for the maximum expected tidal rate of change.
3) A pump system includes the pump(s) which will cease to operate due to a single failure in any component.
4) The back-up requirement X% capacity in all tanks could be covered by a modified ballast procedure giving X% capacity in all tanks involved in this modified procedure.

5.2.1 Vervece – Necessary pump capacity

Tide compensation

The maximum tidal range during September 2025 equals 3.17m.

According to the rule of twelfths, the maximum expected tidal rate of change equals (3/12) x 3.17m = 0.8m/hr.

The water surface of Vervece equals 91,44m (length) x 27,432m (breadth) = 2508,4m²

A pump capacity of 0,8m/hr x 2508,;4m² = 2006,7m³/hr is required.

Condition C – Minimum 150% capacity with intact system

This equals a pump capacity of 150% x 2006,7m³/hr = 3010,1m³/hr.
For example, 8x 450m³/hr pumps.

Condition D – Minimum 100% capacity in all tanks with any one pump system failed :

If one pump fails than the capacity equals 7x450m³/hr / 100% = 3150m³/hr
This is higher than 2006,7m³/hr.

Normal operation

The load-in will most likely take place during a falling tide. When the speed of the SPMT's driving off the barge (decreasing the weight on the barge and decreasing the draft of the barge) is in relation to the rate of the falling water level, there will be no need to use pumping capacity to keep the barge level with the quay.

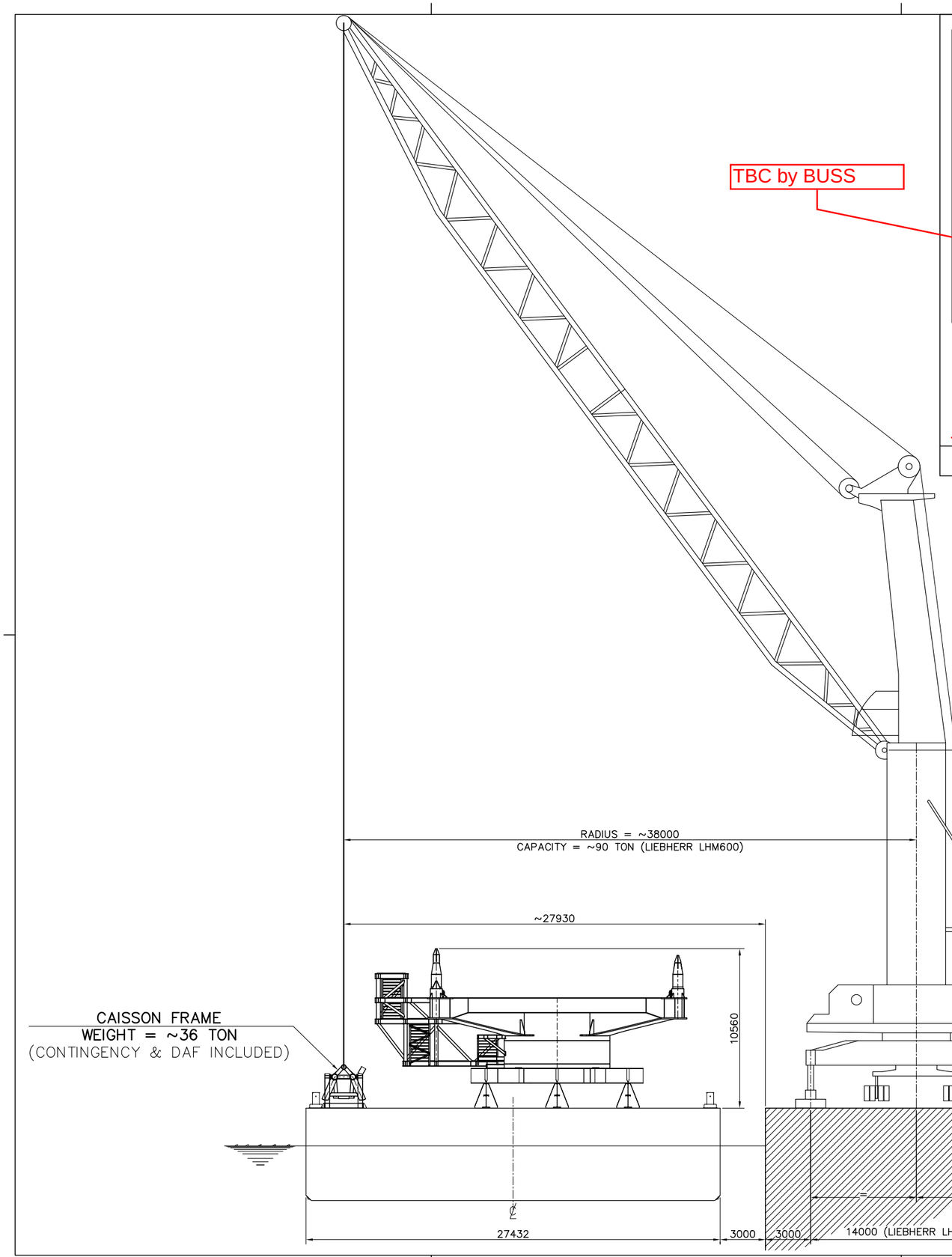
The external ballast pumps also need to keep the barge level.
Condition A – Minimum 200% capacity with intact system: 8x450m³/hr / 200% = 1800m³/hr
&
Condition B – Minimum 120% capacity in all tanks with any one pump system failed: 7x450m³/hr / 120% = 2625m³/hr

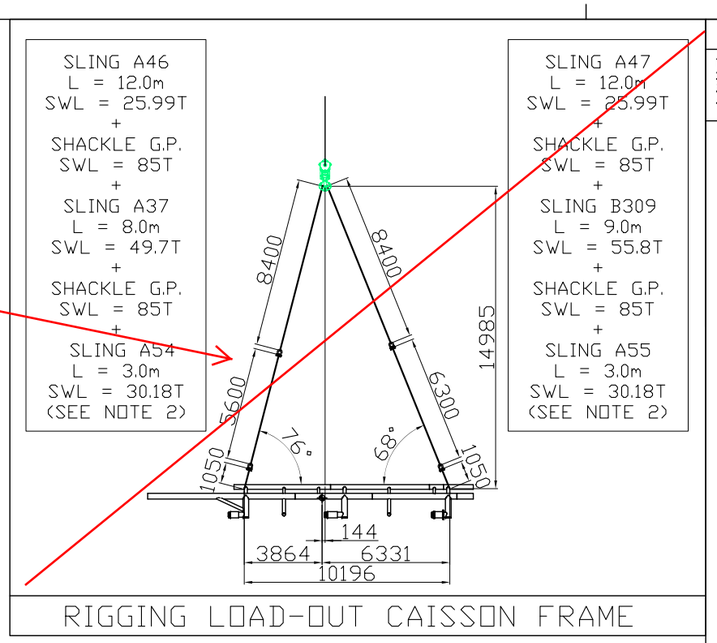
Without performing a detailed calculation yet, a capacity of 1800m³/hr seems the very minimum required to keep the barge level. A detailed study will have to be made.

wating for FULL METHOD statement from SARENS

ATTACHMENT I – LIFTING AND TRANSPORT SCHEME FOR CAISSON FRAME

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RIGGING LOAD-OUT CAISSON FRAME

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – MOORING SCHEME TO BE DEFINED
4 – FENDER DIAMETER AND POSITION TO BE DEFINED

CRANE LHM600

BOOM RADIUS= 38 m
CAPACITY= 88.6t (heavy lift)
LOAD=36t (CONT. INCL.)
RIGGING= 2t

TOTAL LOAD= 38t
U.F. = 0.43

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	26/08/25	NM	FC	CA	
00	21/08/25	NM	FC	CA	

CROSSWIND

ROSETTI MARINO

TITLE :
LOADIN CROSSWIND – STEP 3
CF LOADIN VIEW

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE
DRAWN N.MARIANI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 26/08/25

A1	DRAWING NO. 123A90-FDL-MT-DD-00804	SHEET 001	REV. 01

ATTACHMENT L – HYDROGRAPHICAL SURVEY

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General Information | Buss Terminal Eemshaven

Technical Information & Infrastructure
Beatrixhaven Port Basin

Terminal Area

- Terminal area: 38.500m², planned extension from 01.01.2025 of additional 157.000m²
- Length of quay: 260 mtr (32 m priority, additional 100 m priority form 01.01.2025)
- Design load of 300 kN/sqm, higher point loads allowed

Port basin

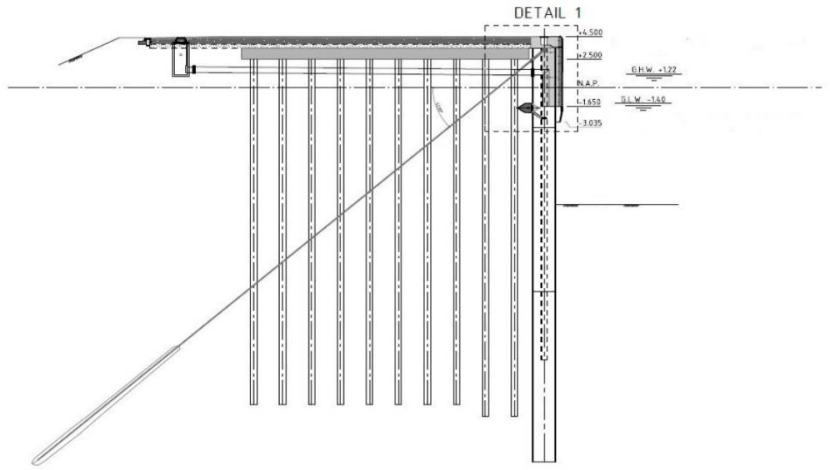
- Width of port basin: 260 mtr
- Width Beatrixhaven Passage: 110 mtr
- Water depth: 11 mtr
- Vessels with a width of > 26 mtr require a permission for berthing from GSP Port Authority

Port access

- Gate passage: unrestricted height
- Depth: 11 mtr at high water (NAP) incl. 10% UKC (UKC Under Keel Clearance)
- Density of water: 1,018 (brackish water)
- 2,5 kn flow velocity
- No locks

Quay infrastructure

- Height of quay above N.A.P.: 4,5 mtr
- Water depth at quay side: 10 mtr
- Tidal range 2 – 3 mtr
- Distance Jack-up Barge: min. 1 mtr from quayside for jacking up
- Uniform distributed design load of quay side 300 kN/sqm
- Bollard pull 600 Kilo Newton (two bollards every 20 mtr)



ATTACHMENT M – TIDE TABLE

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Eemshaven

Hoog- en laagwaterstanden en -tijdstippen

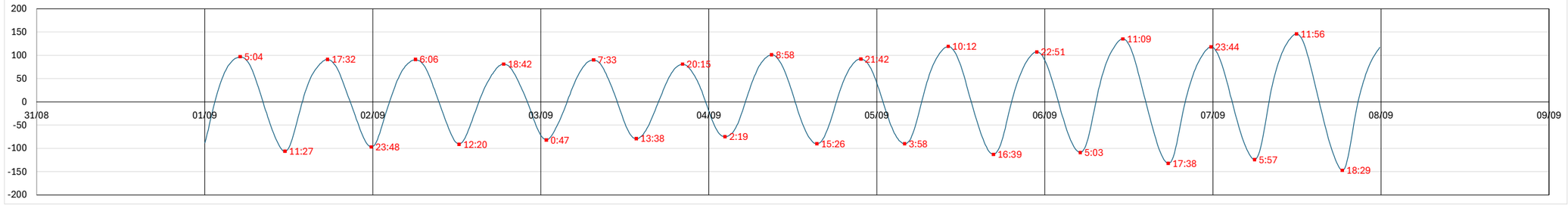
September 2025

datum	uu:mm	HW cm NAP	LW cm NAP
1	*5:04*	97	
ma	*11:27*		-106
	17:32	91	
	23:48		-97
2	*6:06*	91	
di	*12:20*		-91
	18:42	81	
3	*0:47*		-82
wo	*7:33*	90	
	13:38		-79
	20:15	81	
4	*2:19*		-75
do	*8:58*	101	
	15:26		-90
	21:42	92	
5	*3:58*		-90
vr	*10:12*	119	
	16:39		-113
	22:51	107	
6	*5:03*		-109
za	*11:09*	135	
	17:38		-132
	23:44	118	
7	*5:57*		-124
zo	*11:56*	146	
VM 20:08	*18:29*		-147
8	*0:30*	123	
ma	*6:44*		-136
	12:38	153	
	19:14		-156
9	*1:12*	124	
di	*7:28*		-145
	13:16	156	
	19:56		-161
10	*1:50*	124	
wo	*8:10*		-152
	13:54	157	
	20:37		-160
11	*2:24*	123	
do	*8:49*		-156
	14:32	154	
	21:15		-154
12	*2:56*	121	
vr	*9:28*		-154
	15:12	148	
	21:52		-143
13	*3:31*	119	
za	*10:05*		-149
	15:55	137	
	22:27		-129
14	*4:12*	116	
zo	*10:45*		-138
LK 12:33	*16:44*	122	
	23:06		-113
15	*5:04*	111	
ma	*11:32*		-123
	17:48	105	
	23:57		-95
16	*6:16*	106	
di	*12:38*		-107
	19:11	95	
17	*1:14*		-80
wo	*7:39*	108	
	14:13		-105
	20:41	97	
18	*2:51*		-86
do	*9:07*	121	
	15:42		-121
	22:03	109	
19	*4:11*		-106
vr	*10:19*	139	
	16:55		-143
	23:07	122	
20	*5:14*		-125
za	*11:16*	151	
	17:49		-156
	23:58	127	
21	*6:04*		-137
zo	*12:01*	155	
NM 21:54	*18:33*		-156
22	*0:39*	125	
ma	*6:45*		-140
	12:36	152	
	19:11		-149
23	*1:09*	122	
di	*7:20*		-140
	13:05	149	
	19:42		-142
24	*1:30*	121	
wo	*7:51*		-141
	13:34	145	
	20:09		-138
25	*1:54*	123	
do	*8:19*		-142
	14:05	139	
	20:35		-135
26	*2:22*	123	
vr	*8:48*		-139
	14:35	130	
	21:01		-129
27	*2:49*	120	
za	*9:15*		-132
	15:02	119	
	21:26		-122
28	*3:13*	116	
zo	*9:42*		-124
	15:29	109	
	21:51		-115
29	*3:37*	113	
ma	*10:11*		-116
	16:02	100	
	22:22		-108
30	*4:15*	108	
di	*10:50*		-106
EK 1:53	*16:53*	89	
	23:06		-96

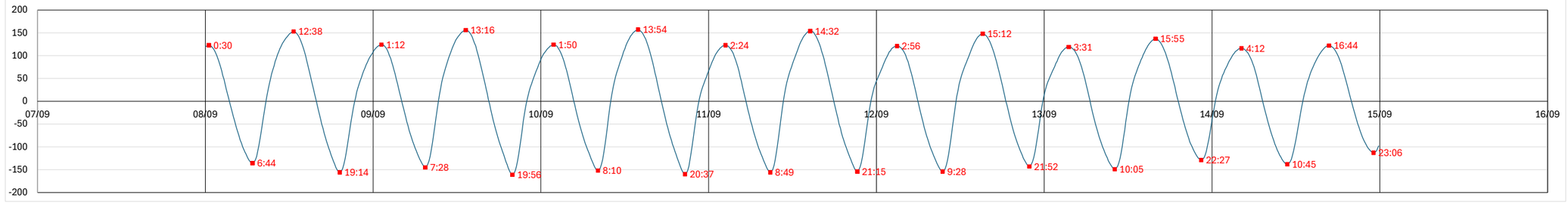
Referentievlak: NAP
LAT = NAP-192 cm

Nederlandse tijd
Cursief gedrukte tijdstippen zijn in ZOMERTIJD

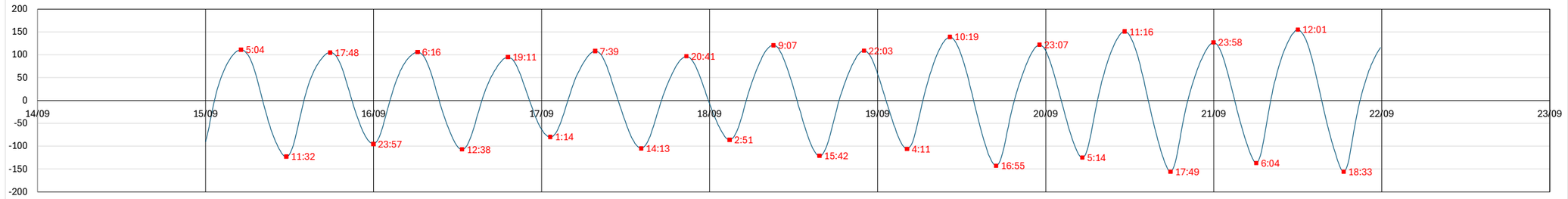
01/09/2025 - 07/09/2025



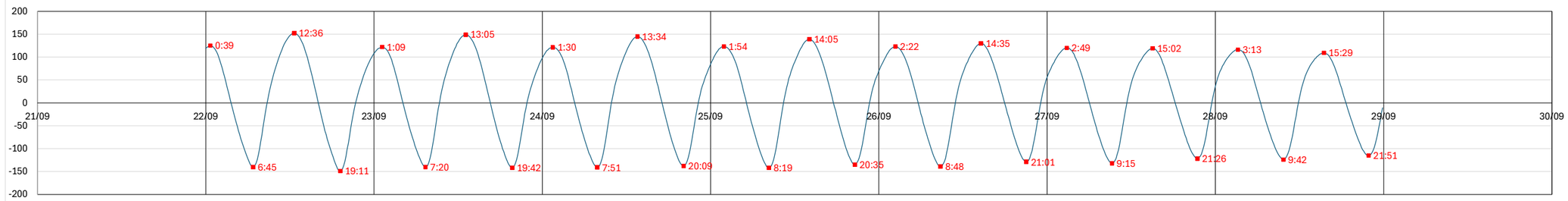
08/09/2025 - 14/09/2025



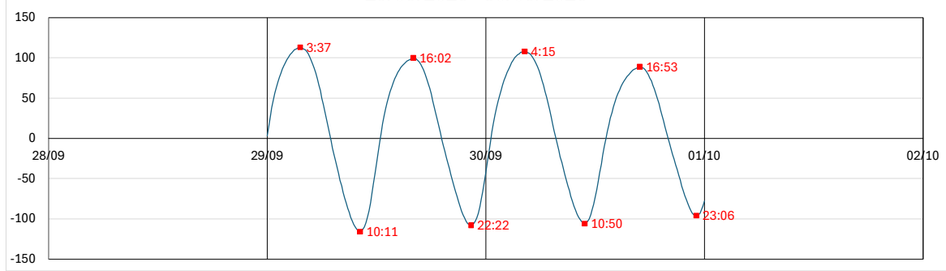
15/09/2025 - 21/09/2025



22/09/2025 - 28/09/2025



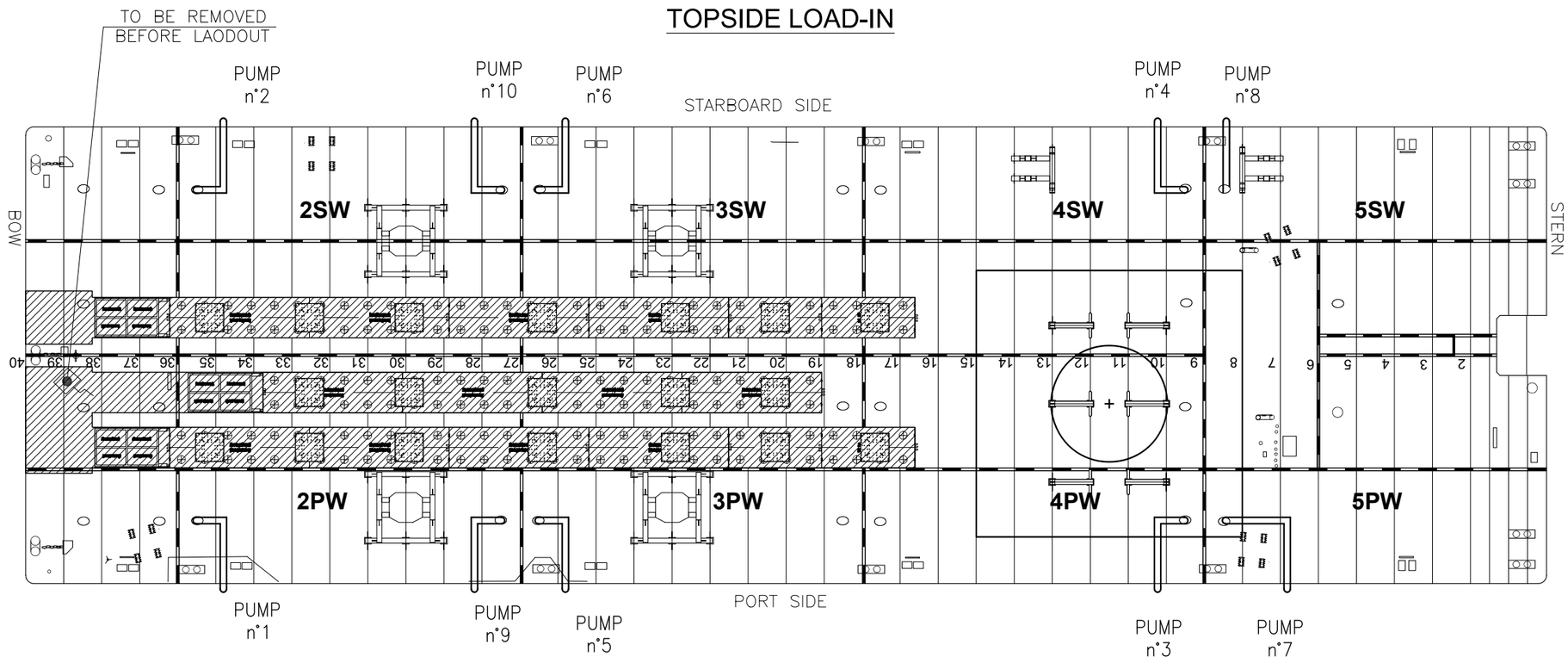
29/09/2025 - 30/09/2025



ATTACHMENT N – PORTABLE BALLASTING PUMPS & GENERAL ARRANGEMENT ON BARGE

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TOPSIDE LOAD-IN



PORTABLE BALLAST PUMP TABLE - BLPH load-in				
PUMP N.	CAPACITY [M3/H]	BARGE TANK	BALLAST ARRANGEMENT	NOTE
1	600	2PW	OUT	LOAD TRANSFER + TIDE
2	600	2SW	OUT	LOAD TRANSFER + TIDE
3	600	4PW	IN	LOAD TRANSFER + TIDE
4	600	4SW	IN	LOAD TRANSFER + TIDE
5	600	3PW	IN	LOAD TRANSFER + TIDE
6	600	3SW	IN	LOAD TRANSFER + TIDE
7	600	5PW	OUT	LOAD TRANSFER + TIDE
8	600	5SW	OUT	LOAD TRANSFER + TIDE
9	600	2PW	IN	LOAD TRANSFER + TIDE
10	600	2SW	IN	LOAD TRANSFER + TIDE
11	600			SPARE
12	600			SPARE

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.

REFERENCE DRAWINGS

DWG No.	DESCRIPTION

TECON

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
00	25/08/25	GS	FC	CA	ISSUED FOR CONSTRUCTION

CROSSWIND

ROSETTI MARINO

TITLE :

BASE LOAD POWER HUB (BLPH)
LOAD-IN TOPSIDE
EXTERNAL BALLAST PUMPS ARRANGEMENT

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK .			SCALE
DRAWN G.SEGURINI	CHECKED F.CERONI	APPROVED C.ANTONELLINI	DATE 12/06/25

A1	DRAWING NO. 123A90-FDL-MT-DD-00808-00	SHEET 001	REV. 01

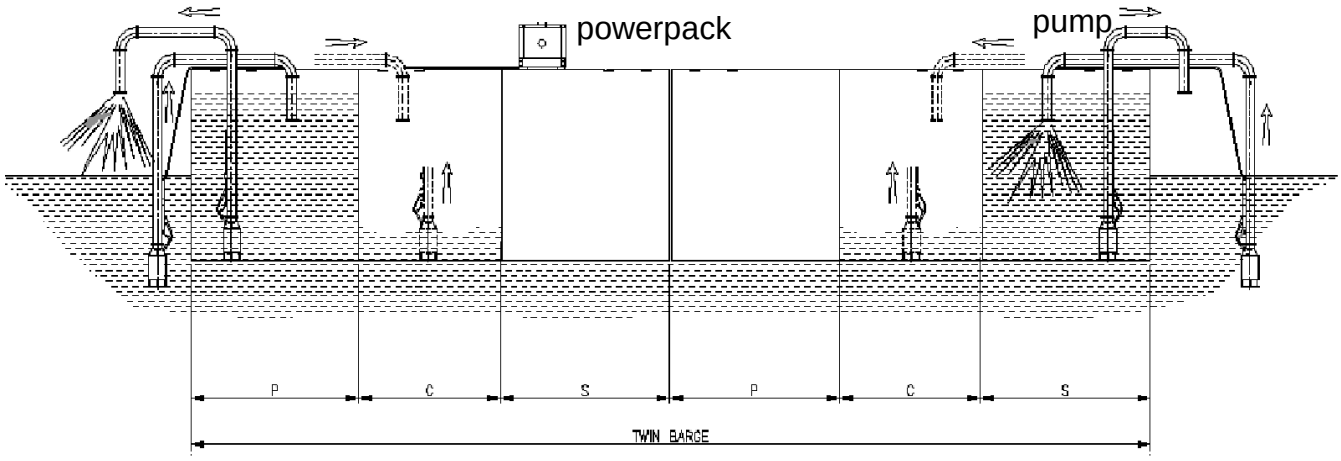
BALLASTING EQUIPMENT – 600T CAPACITY

2	08-03-13	Modification (HSP)	D.V.M.	W. Charita	C.sarens	11
1	09-02-12	Modification (Frames)	W.Charita	C. Sarens	B.Sarens	
0	28-01-08	FIRST ISSUE	W.Charita	C. Sarens	B.Sarens	
REV	DATE	ADAPTION	author	Audited	approved	Pg

1 Ballasting System

1.1 General

The design of this system is the result of many years of experience and through the years, Sarens adopted the principle of “simplicity equals reliability” : “Two pumps - one powerpack - two hoses”. This means that every pump can be individually checked and the flow from each pipe can be individually seen when starting, because the powerpack can only drive 2 pumps and is located (if possible) near the pump. As every discharge is visible, it is easy to confirm which pumps are operating and which are not.
This setup and configuration allows also an easy backup because there is no equipment involved which is necessary and common for all the installed pumps.
This equipment also allows a quick and reliable installation of the ballasting system without disrupting the customer’s main objective of loading with as less as possible influence on the customer’s work like sea



fastenings. The vertical submersible pumps are hydraulically driven by a diesel engine. The diesel engine is equipped with an hydraulic pump, dimensioned in such a way that 2 water pumps can be operated by one power pack. The hydraulic pump is linked with the hydraulic motor inside the pump housing by hydraulic hoses. Inside the power pack, the pump is equipped with a load sensing system. In total there are 48 pumps of 600 T/h (10 m water height) capacity available at Sarens

1.2 Power pack

The power pack is designed to supply two submersible pumps and is equipped with the following parts.

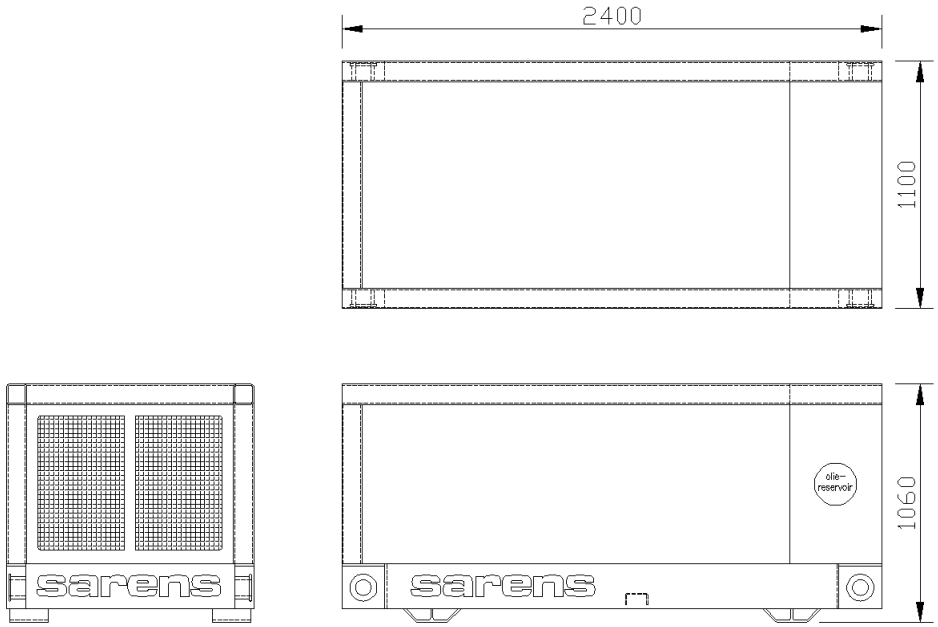
Diesel engine

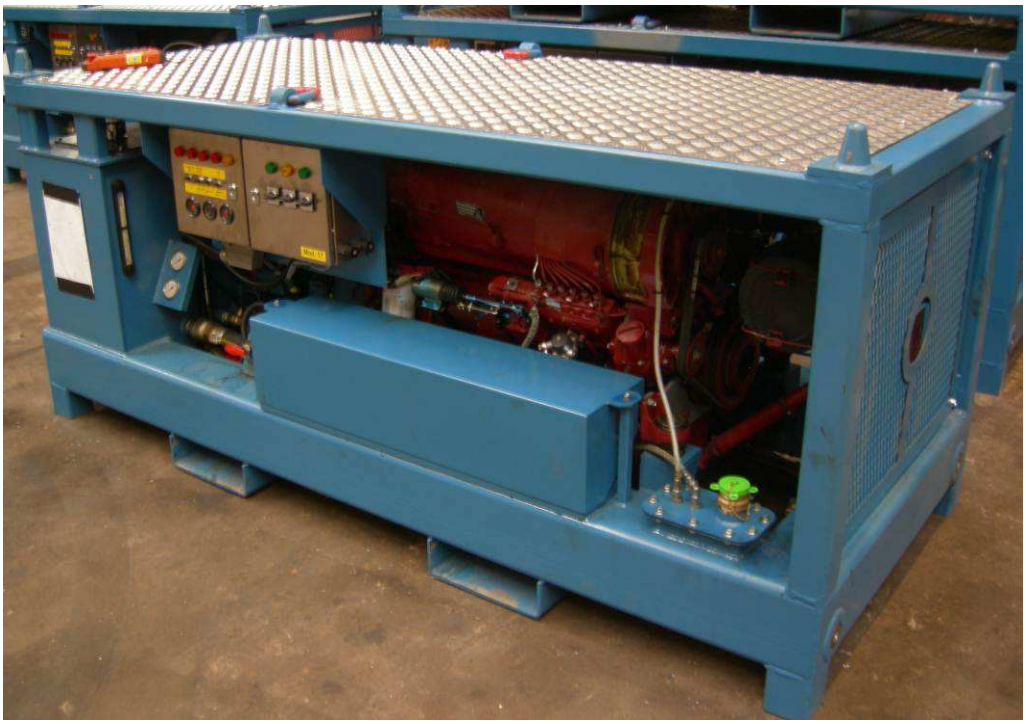
Make	KHD Deutz
Identification number	F6L913
Type	6 cil. in line, air cooled
Speed	1500 - 2000 rpm
Capacity	70 kW
integral fuel tank	200 L diesel (10 hours operation)
Options	Oil cooler
	V-belt tension switch
	lubricating oil pressure

Hydraulic pump :

Make	Rexroth
Identification number	A4VSO 71
Type	axial piston pump with variable displacement
Speed	1500 - 2000 rpm
max. pressure	400 bar
Capacity	58 cm^3/r

The power pack is assembled in such way that handling and positioning on a load out barge is possible in a way that it doesn't matter the trailerpath. Therefore the power packs are only 2400 x 1100 x 1060 (L x W x H) and can be handled by truck or crane.





1.3 Pumps

The water pump is installed together with the hydraulic motor inside the pump house to have some protection during installing and assembling of the ballasting system. The connection between the pump house and the hydraulic pump in the power pack is realised by 3 hydraulic hoses whose length can easily be changed depending on the distance between power pack and water pump.

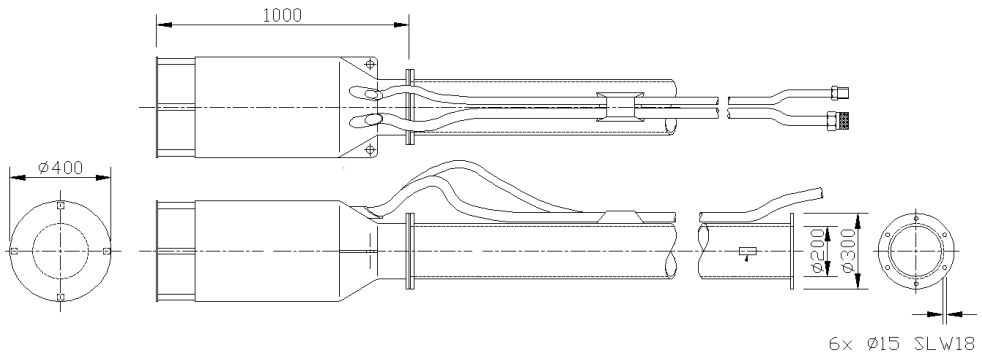
1.3.1 Ensival Pump

Water pump:

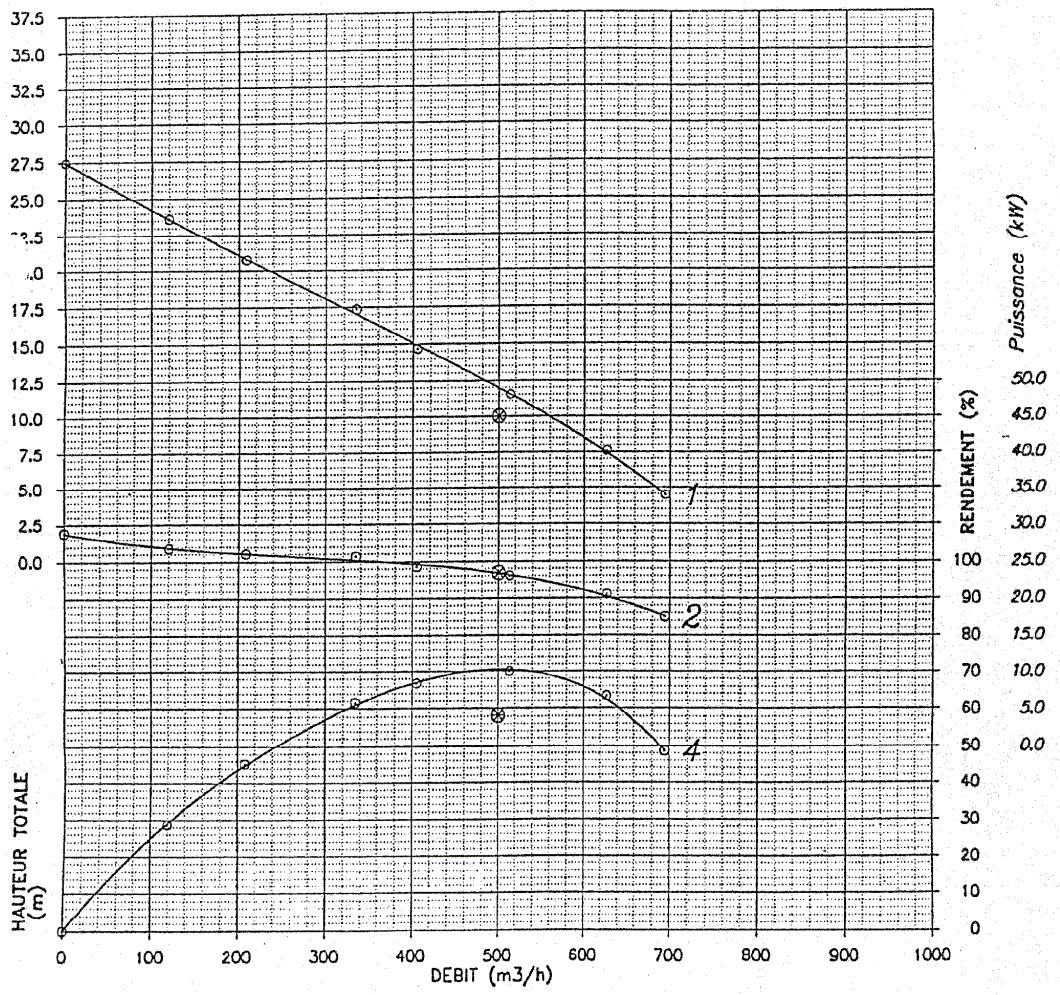
Make	Ensival
Type	HC3VIM submersible pump
Sarens id	Be 600 pump EN1-001-034
rotation speed	1500 - 1700 rpm

Hydraulic motor:

Make	Rexroth
Identification number	A2FM 32
Type	axial piston pump with fixed displacement
Speed	1650 rpm
max. pressure	400 bar
Capacity	28 cm^3 / tr



Capacity chart



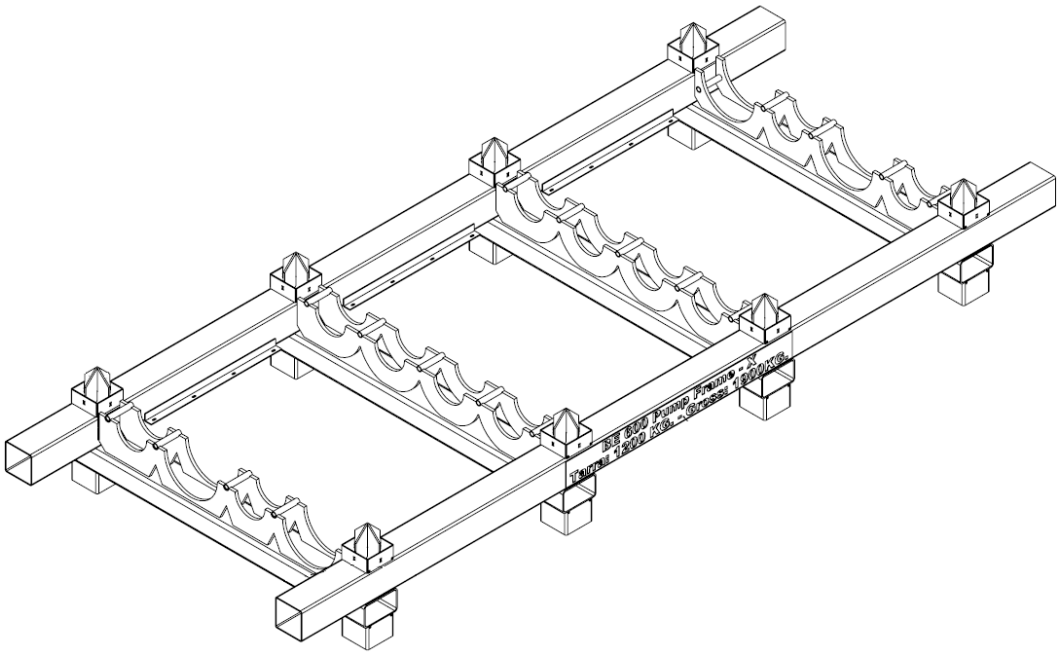
1: head -capacity

2: power

4: Efficiency

Storage frame ensival

The storage frame is made for 4 pumps and fits inside a 20 ft Container. 16 pumps per container. With a weight of 2 tons per frame.



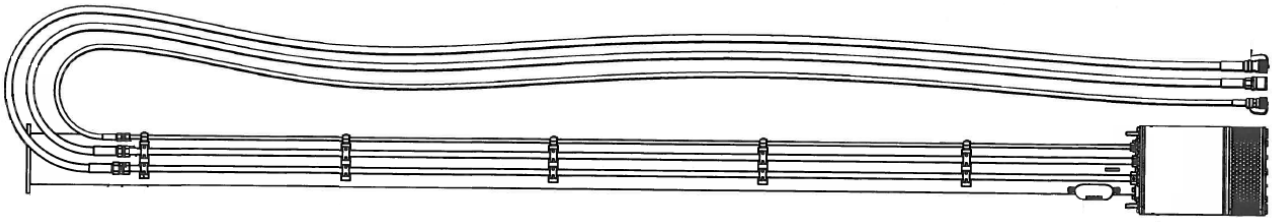
1.3.2 Holland special Pump

Water pump:

Make	Holland special pumps
Type	HSP-10A submersible pump
Sarens Id	BE600 pump HSP1-001-024
Dimensions	Ø390 x 5500 mm
Weight	250kg

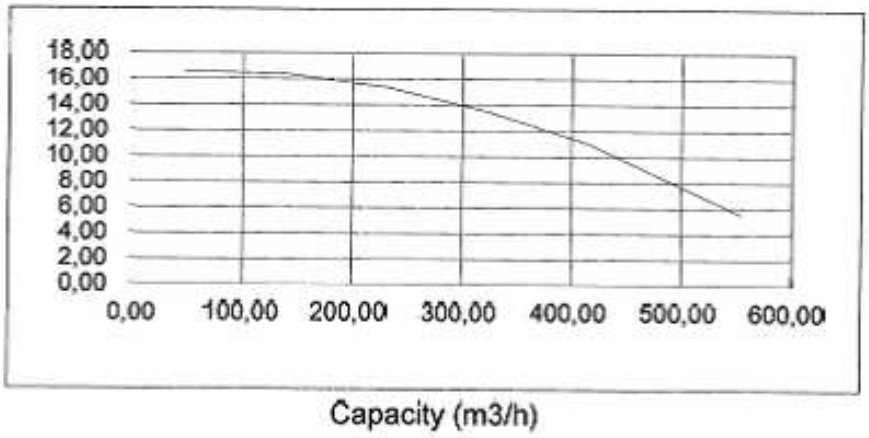
Hydraulic motor :

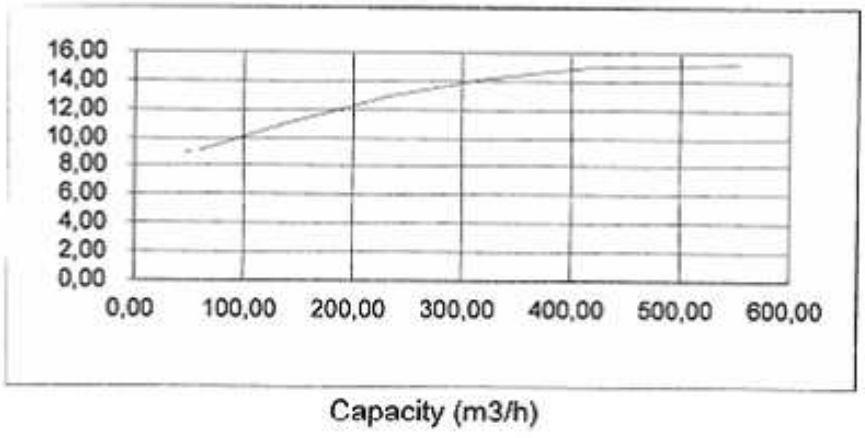
Make	Parker-Volvo
Type	F12-030-iso-Mod
Max. Speed	1840 rpm
Max. pressure	350 bar
Max. return pressure	10 bar

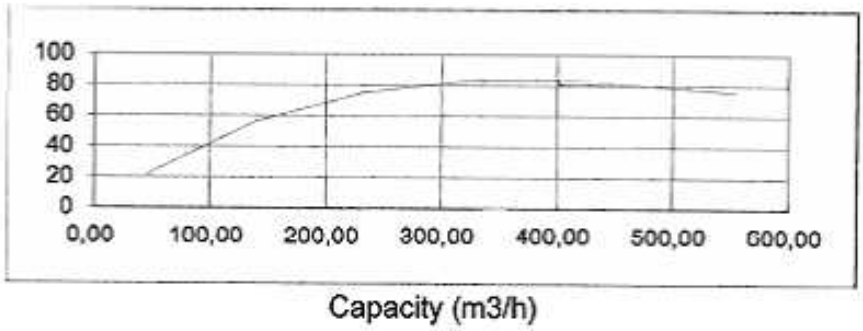


Capacity chart:

RPM : 1350





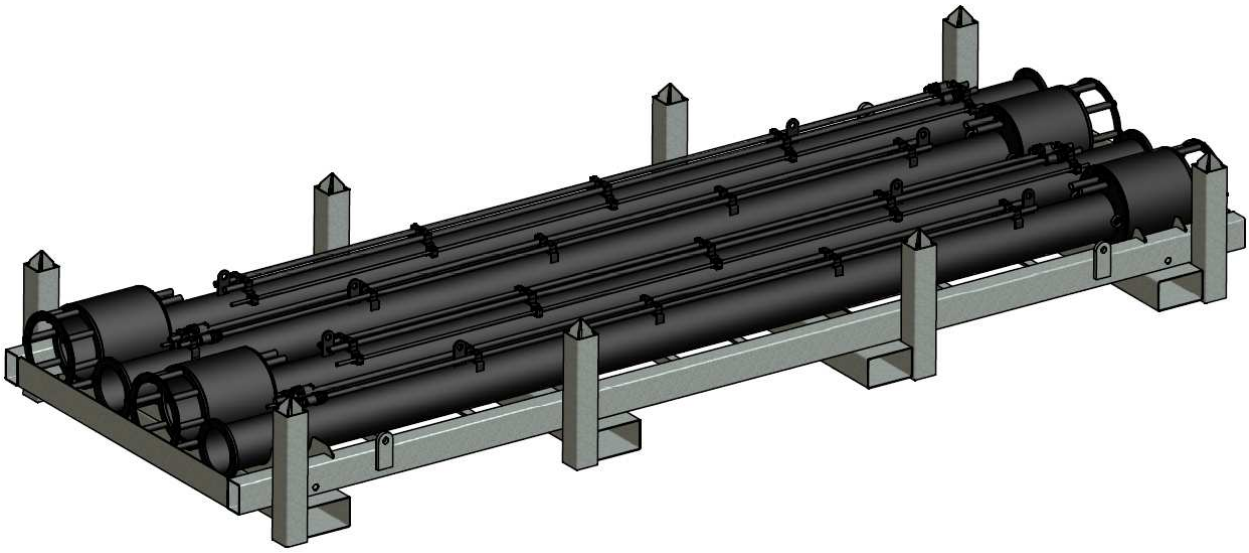


Storage frame Holland special pump

The storage frame is made for 4 pumps.

Dimensions 5600mm x 2140mm x 721mm

Weight with 4 pumps 2 T



1.4 Accesoires

A total set of tubes and hoses (can all be handled by hand) is available to make connections between tanks, pumps and bridging seafastenings, trailerpaths and mooringlines. All this tubes and hoses are connected with bolts and seals to make the connection watertide. Each pump has as a standard configuration a 4 m tube and a 90° bow and is fitted with 15m of hydraulic hoses. List of extra ballasting material : (for information only)

Tubes 4 m / 3 m / 2 m / 1 m / 0,5 m
Bows 45 ° & 90°
Flexibel hoses 6 m
Extra sets hydraulic hoses 15 m
Valves & T – connections



ATTACHMENT O – BALLAST SEQUENCES

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Base Load Power Hub (BLPH)

APPENDIX O – Ballast Sequence for BLPH and TP

Document Number: 123A90-DDL-TI-RE-99054

Document Class: 2

00	25/08/2025	Issued for Review (IFR)	A.Balzarotti	F.Ceroni	D.LoSterzo
Rev.	Date	Description	Prepared	Reviewed	Approved
TECON					

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Revision / Change Log

Rev.	Description
00	Issued for Review (IFR)

HOLDS LIST

No.	Description
1	
2	
3	
4	

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

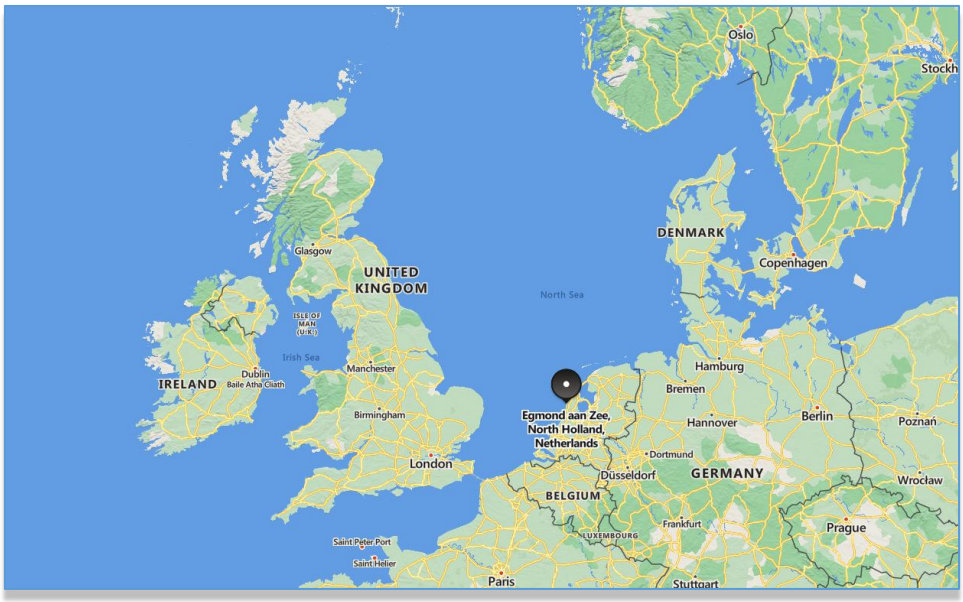


Figure 1.1 HOLLANDSE KUST NOORD WIND PARK Location Map

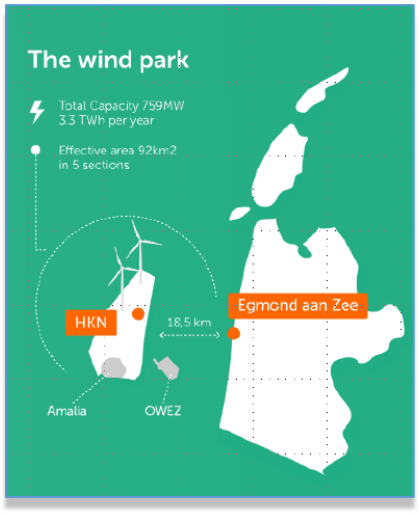


Figure 1.2 - Wind Park Details

The wind farm consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

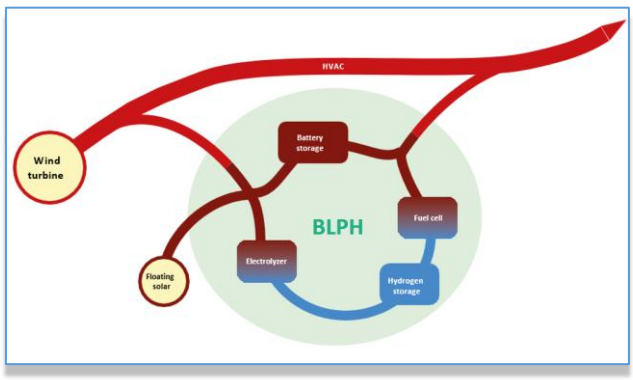


Figure 1.3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH is to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 SCOPE

This report presents the results of the load-in simulation of the BLPH topside and TP from VERVECE barge to Beatrixhaven quay.

The cargo barge has the following main dimensions:

- Barge Name: Vervece
- LOA: 91.44 m
- Breadth: 27.43 m
- Depth: 6.1 m
- Frame Spacing: 2.286 m

The quay elevation above N.A.P. (mean sea level) is +4.50 m.

The operation is planned to be performed on Sept. 2025; the tide variation shall therefore be +1.60m / -1.60m. Normal operation is planned in the falling tide phase.

Load in operation is classified as type 1, as per Table 10-1 of Ref./2/ considering the load in restricted by environmental force and tide level.

The analysis is performed in accordance with the design requirements, criteria and parameters reported in the Structural Design Premises, Ref./4/.

The International System of units (SI) is used in all engineering assessments and calculations.

The hull of the barge and the ballast compartments were modelled using Moses language, Ref./25/.

The Multi-Operational Structural Engineering Simulator (MOSES) offshore engineering software package, developed by Ultramarine Inc., was used to simulate intact stability, and assess the longitudinal strength of the transportation barge during load-in operations.

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3 REFERENCES

3.1 CODES AND STANDARDS

Doc. No.	Description
/1/ API RP 2A-WSD	Recommended practice for planning, designing and constructing fixed offshore platforms – Working stress design – 22nd edition – 2014
/2/ DNV-ST-N001	DNV - Marine operation and marine warranty - 2023

3.2 PROJECT DOCUMENTS

Doc. No.	Description
/3/ 123A90-DDL-MD-RE-01006	Monthly Weight Report
/4/ 123A90-DDL-ST-SP-90017	Structural Design Basis
/5/ 123A90-DDL-ST-SP-90018	Structural Material Specification for Topside & TP
/6/ 123A90-DDL-ST-SP-90118	Structural Material Specification for Flange & Bolts
/7/ 123A90-DDL-ST-TN-90119	Evaluating ISO and DNV approaches
/8/ 123A90-DDL-TI-SP-99014	Specification for TP, Topside and Caissons Transportation and Installation
/9/ 123A90-DDL-ST-RE-90001	Topside loadout analysis
/10/ 123A90-DDL-TI-RE-99001	Topside Gr&SF report
/11/ 123A90-DDL-TI-DD-99021	Topside – Grillage Assembly
/12/ 123A90-DDL-TI-DD-99023	Topside – Grillage – Plan and Section
/13/ 123A90-DDL-TI-RE-99012	Topside – Yard Checklist
/14/ 123A90-DDL-TI-RE-99013	Topside – internal seafastening report
/15/ 123A90-DDL-ST-RE-90008	TP loadout analysis
/16/ 123A90-DDL-TI-RE-99003	Technical note – validation of TP grillage and SF design on barge Vervece
/17/ 123A90-DDL-TI-RE-99004	TP Gr&SF report
/18/ 123A90-DDL-TI-DD-99036	TP – Upper Grillage plan view
/19/ 123A90-DDL-TI-DD-99037	TP upper grillage sections
/20/ 123A90-DDL-TI-DD-99038	TP upper grillage section and details
/21/ 123A90-DDL-TI-DD-99039	TP – Lower Grillage Assembly

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/22/ 123A90-DDL-TI-DD-99040	TP – Lower Grillage – Plan and Section
/23/ 123A90-DDL-TI-RE-99013	TP & CF – Yard Checklist
/24/	Vervece Stability booklet

3.3 SOFTWARE

Doc. No.	Description
/25/ MOSES	Hydrostatic and Hydrodynamic Analysis Software for Offshore Installation and Platform Design– BENTLEY Inc, v.12

4 TRANSPORTATION ARRANGMENT

4.1 BLPH

The BLPH will be supported by spacers installed directly below the lower deck main beams. It is assumed to be located on the barge deck as follows:

- with respect to the barge longitudinal axis an offset of 1142mm.
- Row 1 is located 50861 mm from the barge stern.

The following figure shows the arrangement of the BLPH module on the barge.

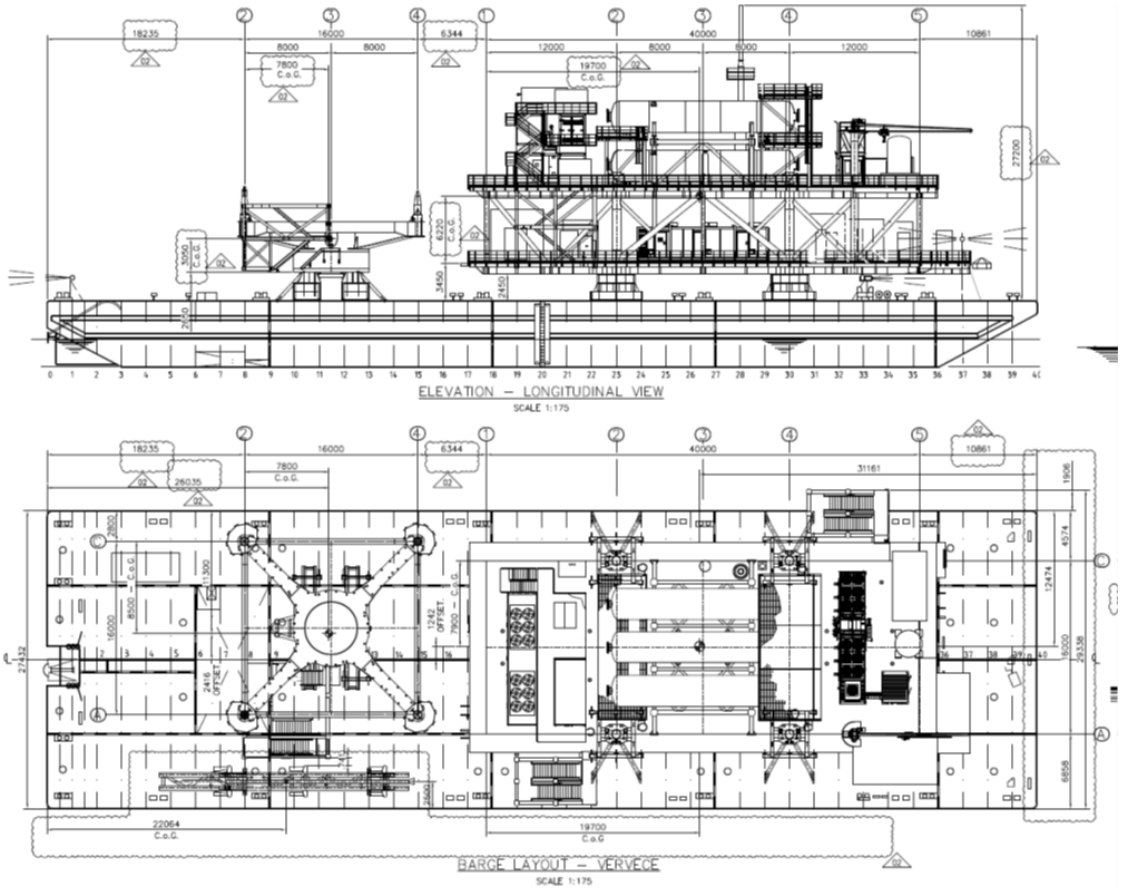


Figure 4.1 – Barge layout

Considering the depth of the lower grillage (including shim plates mm), the bottom ends of deck legs are located at elevation +2.45 m above the barge deck.

4.2 TP

The TP will be supported by SPMT installed directly below the upper grillage beams. It is assumed to be located on the barge deck as follows:

- With respect to the barge longitudinal axis an offset of 2416mm towards port side.
- Row 2 is located 18235mm from the barge stern.

The following figure shows the arrangement of the TP structure on the barge.

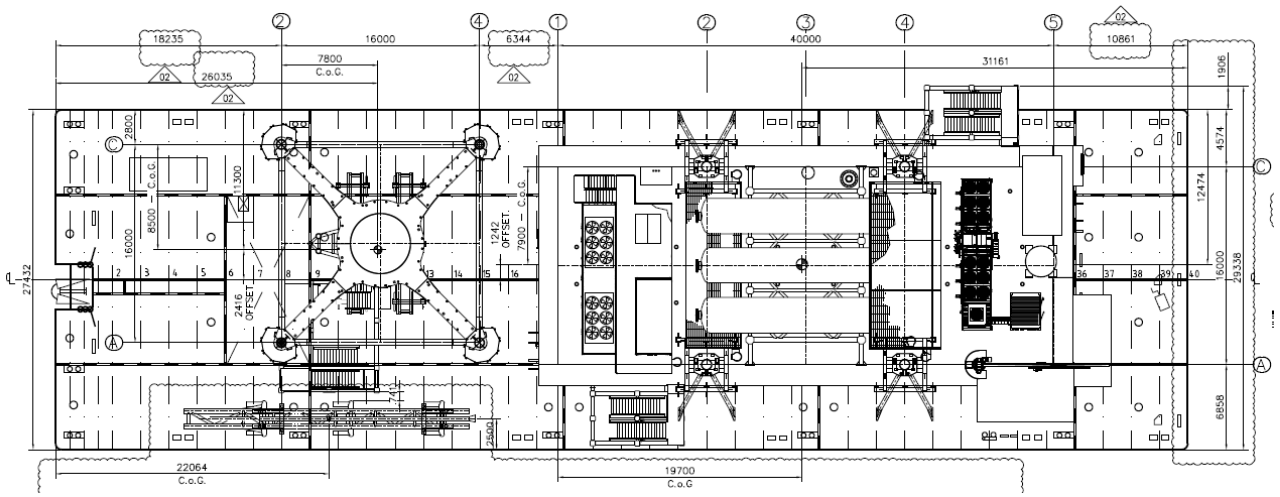


Figure 4.2 – Barge layout

Considering the depth of lower grillage (including shim plates mm), the bottom ends of TP flange is located at elevation +2.65 m above the barge deck.

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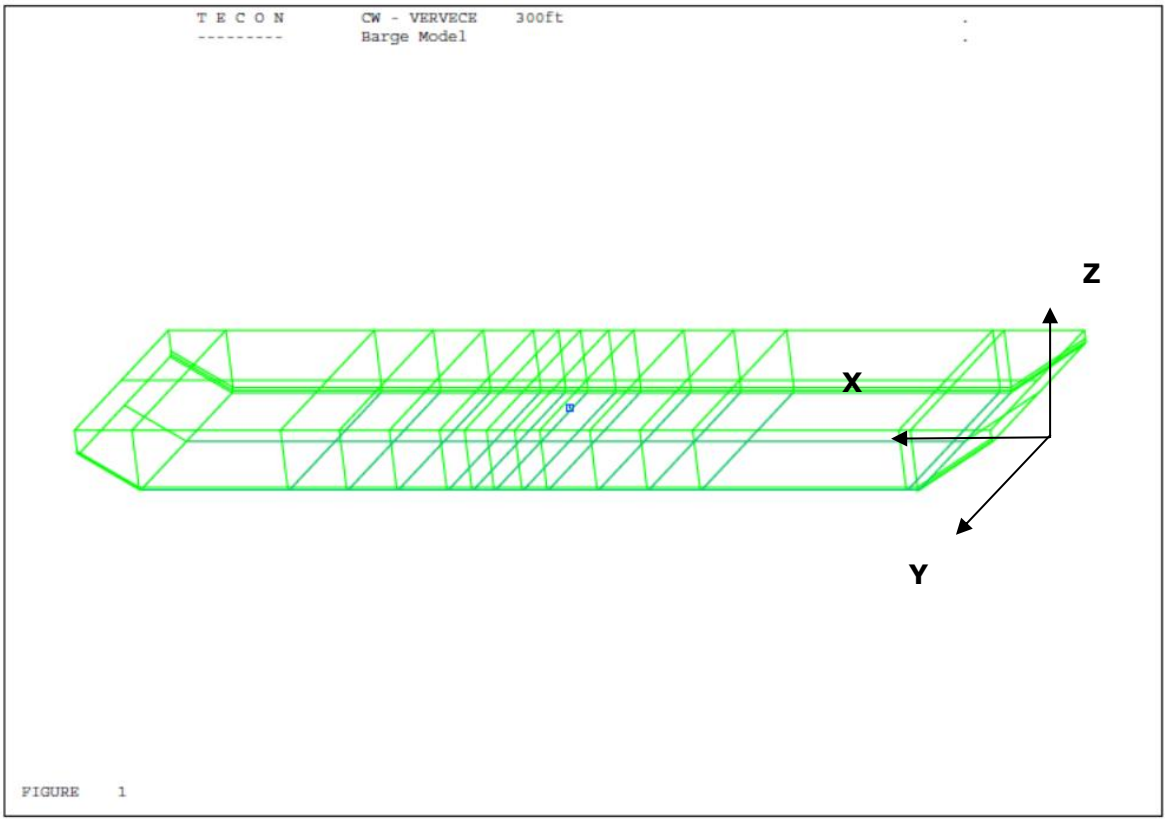
5 CARGO BARGE

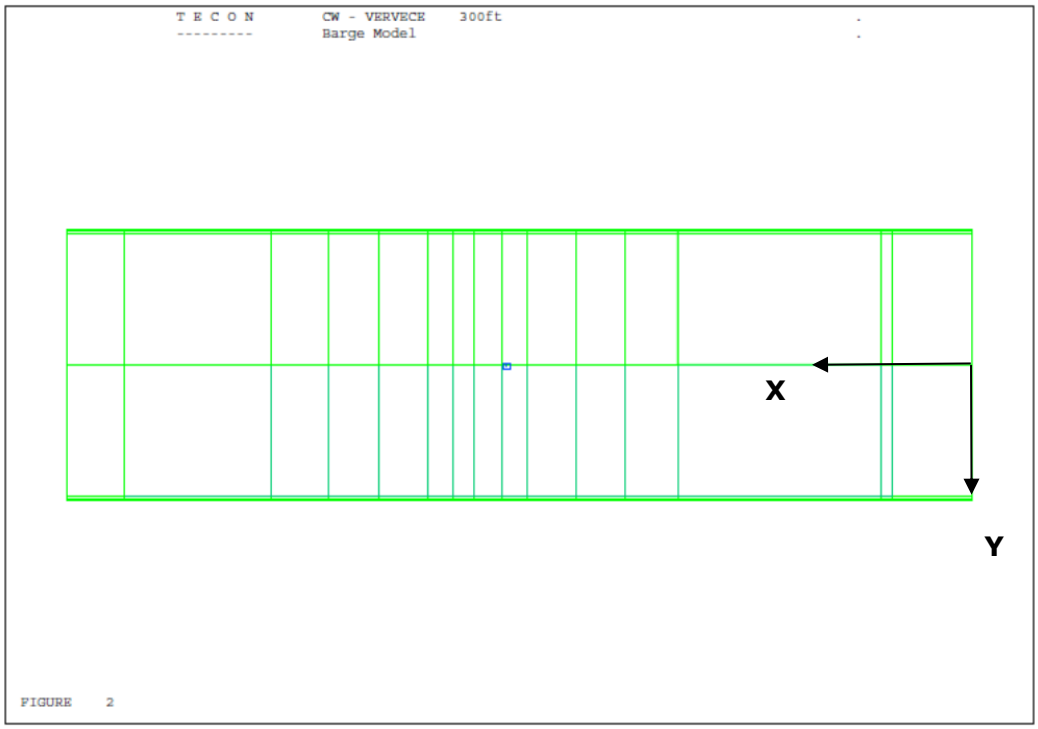
5.1 MOSES MODEL

VERVECE model was set out in MOSES language based on the hull drawings and on the tanks capacities and weight distribution included in the barge documents.

The standard Moses reference system has the origin at the bow of the barge, on the centreline and at keel elevation, the X axis positive from bow to stern, the Y axis positive to starboard and the Z axis positive upwards.

The Moses barge hull model is shown in the following figures:





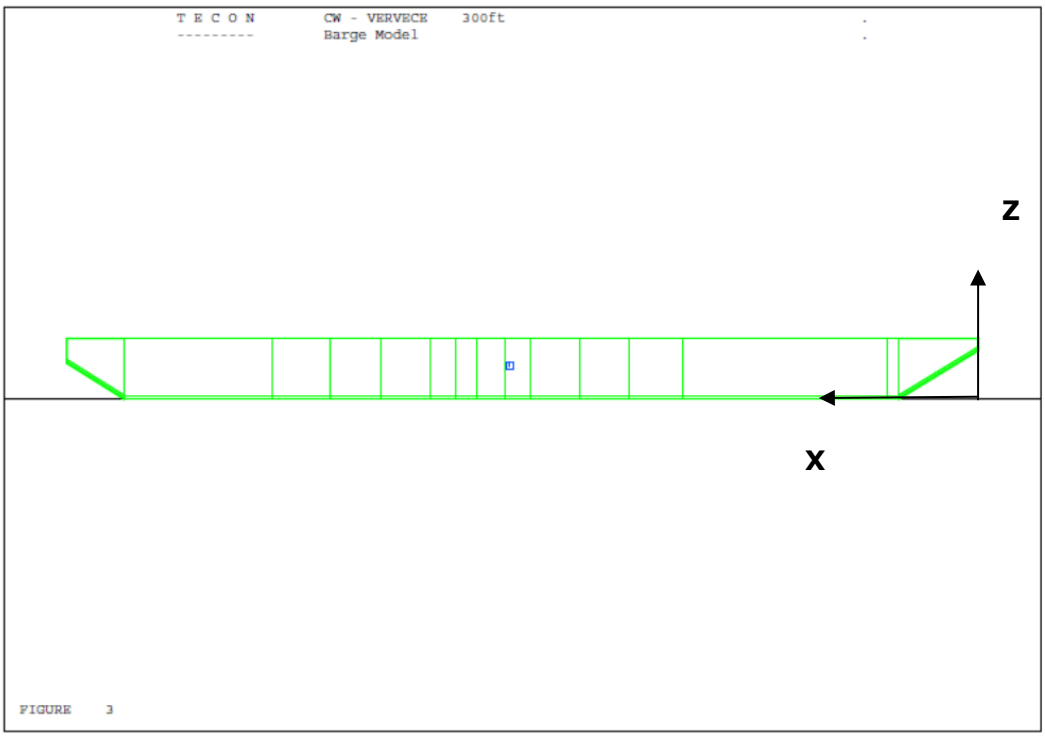


Figure 5.1 – Barge MOSES model and ref. system

The Barge hydrostatic properties are summarised in the following tables.

The density used for sea water is 1.025 t/m3.

```
*****************************************************************************************************
*                                          ***  MOSES   ***                                         *
*                                          ----------------                    25 March, 2025       *
*         T E C O N        CW - VERVECE    300ft                               .                    *
*         ---------        Hydrostatic Curves                                  .                    *
*                                                                                                   *
*****************************************************************************************************

                          +++ H Y D R O S T A T I C   P R O P E R T I E S +++
                          ==================================================

          Process = DEFAULT: Units = Degrees, Meters, M-Tons, and MPa Unless Stated

                                   Results are in the Body System

                                          For Body VERVECE
```

Draft	Trim	Roll	Displac M-Tons	Center Of Buoyancy X	Center Of Buoyancy Y	Center Of Buoyancy Z	W.P. Area	C. Flotation X	C. Flotation Y	Metacentric Heights -KMT-	-KML-	-BMT-	-BML-
0.10	0.00	0.00	211.04	46.85	0.00	0.05	2081.674	46.85	0.00	619.45	5128.82	619.40	5128.77
0.20	0.00	0.00	425.67	46.85	-0.00	0.10	2101.925	46.85	-0.00	313.63	2588.77	313.53	2588.67
0.30	0.00	0.00	641.89	46.85	0.00	0.15	2116.956	46.84	0.00	210.82	1743.33	210.67	1743.18
0.40	0.00	0.00	859.65	46.85	0.00	0.20	2132.015	46.84	0.00	159.57	1321.77	159.37	1321.57
0.50	0.00	0.00	1078.63	46.84	-0.00	0.25	2140.752	46.84	0.00	127.79	1066.52	127.54	1066.27
0.60	0.00	0.00	1298.50	46.84	0.00	0.30	2149.490	46.84	0.00	106.68	896.91	106.37	896.61
0.70	0.00	0.00	1519.27	46.84	-0.00	0.35	2158.227	46.83	0.00	91.64	776.06	91.29	775.70
0.80	0.00	0.00	1740.94	46.84	0.00	0.40	2166.965	46.83	0.00	80.39	685.59	79.99	685.19
0.90	0.00	0.00	1963.50	46.84	-0.00	0.45	2175.702	46.83	0.00	71.66	615.36	71.20	614.90
1.00	0.00	0.00	2186.96	46.84	0.00	0.50	2184.439	46.83	0.00	64.69	559.26	64.19	558.75
1.10	0.00	0.00	2411.31	46.84	-0.00	0.56	2193.177	46.83	0.00	59.00	513.42	58.45	512.87
1.20	0.00	0.00	2636.56	46.84	-0.00	0.61	2201.914	46.82	0.00	54.27	475.29	53.67	474.68
1.30	0.00	0.00	2862.70	46.84	-0.00	0.66	2210.652	46.82	0.00	50.28	443.07	49.62	442.41
1.40	0.00	0.00	3089.74	46.83	0.00	0.71	2219.389	46.82	0.00	46.87	415.49	46.16	414.78
1.50	0.00	0.00	3317.68	46.83	0.00	0.76	2228.126	46.82	0.00	43.92	391.62	43.16	390.86
1.60	0.00	0.00	3546.51	46.83	-0.00	0.81	2236.864	46.81	0.00	41.34	370.77	40.53	369.96
1.70	0.00	0.00	3776.23	46.83	-0.00	0.86	2245.601	46.81	0.00	39.07	352.40	38.21	351.54
1.80	0.00	0.00	4006.86	46.83	-0.00	0.91	2254.339	46.81	0.00	37.07	336.10	36.15	335.19
1.90	0.00	0.00	4238.37	46.83	-0.00	0.96	2263.076	46.81	0.00	35.28	321.54	34.31	320.58
2.00	0.00	0.00	4470.79	46.83	0.00	1.01	2271.813	46.81	0.00	33.67	308.46	32.65	307.45
2.10	0.00	0.00	4704.09	46.83	0.00	1.07	2280.551	46.80	0.00	32.22	296.65	31.15	295.58
2.20	0.00	0.00	4938.30	46.83	0.00	1.12	2289.288	46.80	0.00	30.91	285.93	29.79	284.81
2.30	0.00	0.00	5173.40	46.82	0.00	1.17	2298.026	46.80	0.00	29.71	276.17	28.54	275.00
2.40	0.00	0.00	5409.40	46.82	-0.00	1.22	2306.763	46.80	0.00	28.62	267.23	27.40	266.01
2.50	0.00	0.00	5646.29	46.82	-0.00	1.27	2315.500	46.79	0.00	27.63	259.03	26.35	257.76
2.60	0.00	0.00	5884.07	46.82	0.00	1.32	2324.238	46.79	0.00	26.71	251.48	25.38	250.15
2.70	0.00	0.00	6122.75	46.82	-0.00	1.38	2332.975	46.79	0.00	25.86	244.50	24.49	243.12
2.80	0.00	0.00	6362.33	46.82	0.00	1.43	2341.713	46.79	0.00	25.08	238.03	23.65	236.60
2.90	0.00	0.00	6602.80	46.82	0.00	1.48	2350.450	46.79	0.00	24.35	232.03	22.88	230.55
3.00	0.00	0.00	6844.17	46.82	0.00	1.53	2359.188	46.78	0.00	23.68	226.44	22.15	224.91
3.10	0.00	0.00	7086.44	46.81	0.00	1.58	2367.925	46.78	0.00	23.06	221.22	21.47	219.64
3.20	0.00	0.00	7329.60	46.81	0.00	1.63	2376.663	46.78	-0.00	22.47	216.35	20.84	214.71
3.30	0.00	0.00	7573.65	46.81	0.00	1.69	2385.400	46.78	0.00	21.93	211.78	20.24	210.10
3.40	0.00	0.00	7818.61	46.81	-0.00	1.74	2394.138	46.77	0.00	21.42	207.50	19.68	205.76
3.50	0.00	0.00	8064.45	46.81	0.00	1.79	2402.875	46.77	-0.00	20.94	203.47	19.15	201.68
3.60	0.00	0.00	8311.19	46.81	0.00	1.84	2411.444	46.77	-0.00	20.49	199.63	18.65	197.79
3.70	0.00	0.00	8558.60	46.81	0.00	1.90	2415.958	46.69	-0.00	20.04	195.05	18.14	193.15
3.80	0.00	0.00	8806.47	46.80	0.00	1.95	2420.419	46.61	-0.00	19.61	190.71	17.66	188.76
3.90	0.00	0.00	9054.78	46.80	0.00	2.00	2424.867	46.52	-0.00	19.21	186.60	17.21	184.60
4.00	0.00	0.00	9303.56	46.79	0.00	2.05	2429.302	46.44	-0.00	18.83	182.70	16.78	180.65
4.10	0.00	0.00	9552.79	46.78	-0.00	2.10	2433.730	46.36	0.00	18.48	179.00	16.37	176.90
4.20	0.00	0.00	9802.47	46.77	-0.00	2.16	2438.159	46.28	0.00	18.14	175.49	15.99	173.34
4.30	0.00	0.00	10052.61	46.75	0.00	2.21	2442.588	46.20	-0.00	17.82	172.15	15.62	169.95
4.40	0.00	0.00	10303.21	46.74	0.00	2.26	2447.017	46.11	0.00	17.52	168.98	15.26	166.72
4.50	0.00	0.00	10554.25	46.72	-0.00	2.31	2451.446	46.03	-0.00	17.24	165.95	14.93	163.64
4.60	0.00	0.00	10805.76	46.70	-0.00	2.36	2455.874	45.95	-0.00	16.97	163.06	14.61	160.69
4.70	0.00	0.00	11057.71	46.69	-0.00	2.42	2460.303	45.87	-0.00	16.72	160.30	14.30	157.88
4.80	0.00	0.00	11310.12	46.67	0.00	2.47	2464.732	45.79	-0.00	16.47	157.66	14.01	155.20
4.90	0.00	0.00	11562.96	46.65	0.00	2.52	2468.126	45.72	-0.00	16.24	154.95	13.72	152.43
5.00	0.00	0.00	11815.95	46.63	-0.00	2.57	2468.198	45.72	-0.00	16.00	151.75	13.43	149.18
5.10	0.00	0.00	12068.95	46.61	0.00	2.62	2468.228	45.72	-0.00	15.77	148.68	13.15	146.06
5.20	0.00	0.00	12321.94	46.59	-0.00	2.68	2468.245	45.72	0.00	15.55	145.74	12.88	143.06
5.30	0.00	0.00	12574.93	46.57	-0.00	2.73	2468.249	45.72	-0.00	15.34	142.91	12.62	140.18
5.40	0.00	0.00	12827.93	46.56	0.00	2.78	2468.249	45.72	-0.00	15.15	140.20	12.37	137.42
5.50	0.00	0.00	13080.93	46.54	0.00	2.83	2468.249	45.72	-0.00	14.96	137.59	12.13	134.76
5.60	0.00	0.00	13333.92	46.52	-0.00	2.88	2468.249	45.72	-0.00	14.78	135.09	11.90	132.20
5.70	0.00	0.00	13586.92	46.51	-0.00	2.93	2468.249	45.72	-0.00	14.61	132.68	11.68	129.74

5.80	0.00	0.00	13839.91	46.49	-0.00	2.99	2468.249	45.72	-0.00	14.45	130.36	11.46	127.37
5.90	0.00	0.00	14092.91	46.48	0.00	3.04	2468.249	45.72	-0.00	14.30	128.12	11.26	125.08
6.00	0.00	0.00	14345.91	46.47	-0.00	3.09	2468.249	45.72	-0.00	14.15	125.97	11.06	122.88

+++ H Y D R O S T A T I C C O E F F I C I E N T S +++

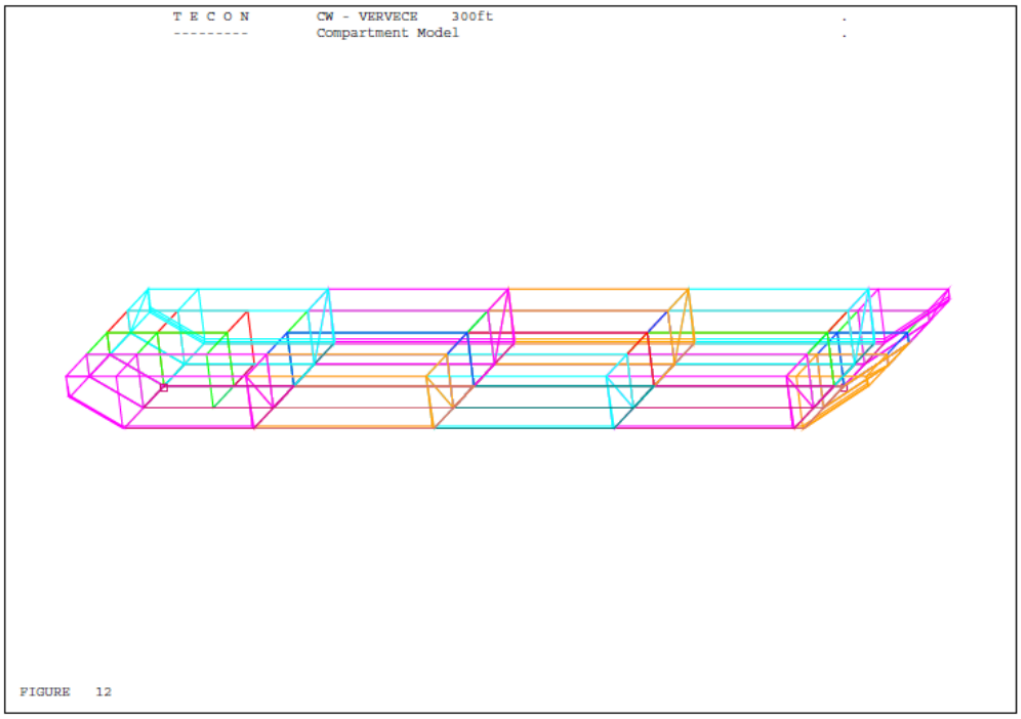
Process = DEFAULT: Units = Degrees, Meters, M-Tons, and MPa Unless Stated

Results are in the Body System

For Body VERVECE

/--- Condition ---/			Displacement	Wetted Surface	Load To Change Draft 1 MM	/--- For KG = KB ----/ Moment To Change .01 Deg	
Draft	Trim	Roll				--- Heel ---	--- Trim ---
0.10	0.00	0.00	211.04	2120.1	2.13	22.81	188.91
0.20	0.00	0.00	425.67	2151.4	2.15	23.29	192.32
0.30	0.00	0.00	641.89	2178.7	2.17	23.60	195.29
0.40	0.00	0.00	859.65	2206.1	2.19	23.91	198.28
0.50	0.00	0.00	1078.63	2232.2	2.19	24.01	200.73
0.60	0.00	0.00	1298.50	2258.4	2.20	24.11	203.20
0.70	0.00	0.00	1519.27	2284.7	2.21	24.21	205.69
0.80	0.00	0.00	1740.94	2311.0	2.22	24.30	208.20
0.90	0.00	0.00	1963.50	2337.4	2.23	24.40	210.72
1.00	0.00	0.00	2186.96	2363.9	2.24	24.50	213.27
1.10	0.00	0.00	2411.31	2390.4	2.25	24.60	215.84
1.20	0.00	0.00	2636.56	2417.0	2.26	24.70	218.43
1.30	0.00	0.00	2862.70	2443.6	2.27	24.79	221.04
1.40	0.00	0.00	3089.74	2470.3	2.27	24.89	223.67
1.50	0.00	0.00	3317.68	2497.1	2.28	24.99	226.33
1.60	0.00	0.00	3546.51	2524.0	2.29	25.09	229.00
1.70	0.00	0.00	3776.23	2550.9	2.30	25.19	231.69
1.80	0.00	0.00	4006.86	2577.9	2.31	25.28	234.41
1.90	0.00	0.00	4238.37	2604.9	2.32	25.38	237.15
2.00	0.00	0.00	4470.79	2632.0	2.33	25.48	239.90
2.10	0.00	0.00	4704.09	2659.2	2.34	25.58	242.68
2.20	0.00	0.00	4938.30	2686.4	2.35	25.68	245.48
2.30	0.00	0.00	5173.40	2713.7	2.36	25.77	248.30
2.40	0.00	0.00	5409.40	2741.1	2.36	25.87	251.15
2.50	0.00	0.00	5646.29	2768.5	2.37	25.97	254.01
2.60	0.00	0.00	5884.07	2796.0	2.38	26.07	256.90
2.70	0.00	0.00	6122.75	2823.6	2.39	26.17	259.80
2.80	0.00	0.00	6362.33	2851.2	2.40	26.26	262.73
2.90	0.00	0.00	6602.80	2878.9	2.41	26.36	265.69
3.00	0.00	0.00	6844.17	2906.7	2.42	26.46	268.66
3.10	0.00	0.00	7086.44	2934.5	2.43	26.56	271.66
3.20	0.00	0.00	7329.60	2962.4	2.44	26.66	274.67
3.30	0.00	0.00	7573.65	2990.3	2.45	26.75	277.71
3.40	0.00	0.00	7818.61	3018.4	2.45	26.85	280.78
3.50	0.00	0.00	8064.45	3046.4	2.46	26.95	283.86
3.60	0.00	0.00	8311.19	3074.5	2.47	27.05	286.91
3.70	0.00	0.00	8558.60	3100.3	2.48	27.10	288.53
3.80	0.00	0.00	8806.47	3126.2	2.48	27.15	290.13
3.90	0.00	0.00	9054.78	3152.1	2.49	27.20	291.73
4.00	0.00	0.00	9303.56	3178.0	2.49	27.25	293.33
4.10	0.00	0.00	9552.79	3204.0	2.49	27.30	294.94
4.20	0.00	0.00	9802.47	3230.0	2.50	27.35	296.55
4.30	0.00	0.00	10052.61	3256.0	2.50	27.40	298.17
4.40	0.00	0.00	10303.21	3282.0	2.51	27.45	299.80
4.50	0.00	0.00	10554.25	3308.1	2.51	27.50	301.43
4.60	0.00	0.00	10805.76	3334.3	2.52	27.55	303.06
4.70	0.00	0.00	11057.71	3360.4	2.52	27.60	304.71
4.80	0.00	0.00	11310.12	3386.6	2.53	27.65	306.35
4.90	0.00	0.00	11562.96	3412.3	2.53	27.69	307.62
5.00	0.00	0.00	11815.95	3436.0	2.53	27.69	307.65
5.10	0.00	0.00	12068.95	3459.8	2.53	27.69	307.66
5.20	0.00	0.00	12321.94	3483.6	2.53	27.69	307.67
5.30	0.00	0.00	12574.93	3507.3	2.53	27.69	307.67
5.40	0.00	0.00	12827.93	3531.1	2.53	27.69	307.67
5.50	0.00	0.00	13080.93	3554.9	2.53	27.69	307.67
5.60	0.00	0.00	13333.92	3578.7	2.53	27.69	307.67
5.70	0.00	0.00	13586.92	3602.4	2.53	27.69	307.67
5.80	0.00	0.00	13839.91	3626.2	2.53	27.69	307.67
5.90	0.00	0.00	14092.91	3650.0	2.53	27.69	307.67
6.00	0.00	0.00	14345.91	3673.8	2.53	27.69	307.67

The modelled compartment codes are shown in the following figure



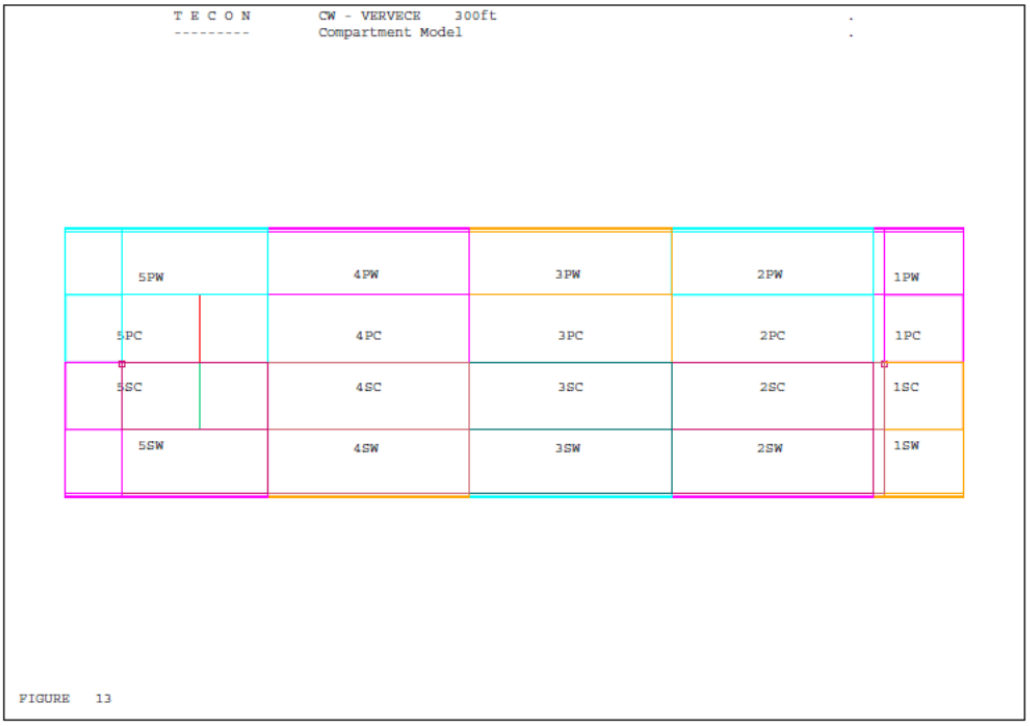


Figure 5.2 – Barge Compartments

The capacity plan for ballast compartments is presented in the Moses output.

The density used for ballast water is 1.025 t/m3 (same of sea water).

```
*****************************************************************************************************************
*                                          ***  MOSES   ***                                                     *
*          T E C O N       CW - VERVECE    300ft                                          .                     *
*          ---------       Capacity Plan                                                  .                     *
*****************************************************************************************************************

                    +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                    ====================================================================
                  Process = DEFAULT: Units = Degrees, Meters, M-Tons, and MPa Unless Stated

                                  Results Are Reported In Body System

                       Draft =     0.00 Roll Angle =     0.00 Pitch Angle =     0.00

                                     Wet Radii Of Gyration About CG

                               K-X =     7.95 K-Y =    24.53 K-Z =    25.56

                                          /-- Center of Gravity ---/  Sounding   % Full
                       Name      Weight    ---X---  ---Y---  ---Z---  -------- --------

                       ----------------  Part VERVECE    ------------
                       LOAD_GRO   1832.80    47.02     0.00     3.52
                       --- Contents ---
                       1PC         234.61     5.60    -3.43     3.81     6.10   100.00
                       1PW         234.98     5.60   -10.28     3.82     6.10   100.00
                       1SC         235.12     5.60     3.43     3.81     6.10   100.00
                       1SW         234.98     5.60    10.28     3.82     6.10   100.00
                       2PC         873.69    19.43    -3.43     3.05     6.10   100.00
                       2PW         873.63    19.43   -10.28     3.05     6.10   100.00
                       2SC         873.69    19.43     3.43     3.05     6.10   100.00
                       2SW         873.63    19.43    10.28     3.05     6.10   100.00
                       3PC         873.69    40.01    -3.43     3.05     6.10   100.00
                       3PW         873.63    40.00   -10.28     3.05     6.10   100.00
                       3SC         873.69    40.01     3.43     3.05     6.10   100.00
                       3SW         873.63    40.01    10.28     3.05     6.10   100.00
                       4PC         873.69    60.58    -3.43     3.05     6.10   100.00
                       4PW         873.63    60.58   -10.28     3.05     6.10   100.00
                       4SC         873.69    60.58     3.43     3.05     6.10   100.00
                       4SW         873.63    60.58    10.28     3.05     6.10   100.00
                       5PC         492.02    83.89    -3.43     3.31     6.10   100.00
                       5PW         793.58    80.40   -10.28     3.22     6.10   100.00
                       5SC         484.29    83.89     3.43     3.31     6.10   100.00
                       5SW         793.58    80.40    10.28     3.22     6.10   100.00
                       ========  ========  =======  =======  =======
                       Total     15819.89    45.53    -0.00     3.18
                       Buoyancy      0.00     0.00     0.00     0.00

                            +++ C O M P A R T M E N T   P R O P E R T I E S +++
                            ===================================================
                                  Results Are Reported In Body System

                         Process = DEFAULT: Units = Degrees, Meters, M-Tons, and MPa Unless Stated

                                  Fill   Specific /--- Ballast ---/ /------ % Full --------/ Sounding
                           Name   Type    Gravity  Maximum  Current   Max.    Min.    Curr.  --------

                         1PC     CORRECT    1.0250    234.6    234.6  100.00    0.00  100.00     6.096
                         1PW     CORRECT    1.0250    235.0    235.0  100.00    0.00  100.00     6.096
                         1SC     CORRECT    1.0250    235.1    235.1  100.00    0.00  100.00     6.096
                         1SW     CORRECT    1.0250    235.0    235.0  100.00    0.00  100.00     6.096
                         2PC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         2PW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         2SC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         2SW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         3PC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         3PW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         3SC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         3SW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         4PC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         4PW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         4SC     CORRECT    1.0250    873.7    873.7  100.00    0.00  100.00     6.096
                         4SW     CORRECT    1.0250    873.6    873.6  100.00    0.00  100.00     6.096
                         5PC     CORRECT    1.0250    492.0    492.0  100.00    0.00  100.00     6.096
                         5PW     CORRECT    1.0250    793.6    793.6  100.00    0.00  100.00     6.096
                         5SC     CORRECT    1.0250    484.3    484.3  100.00    0.00  100.00     6.096
                         5SW     CORRECT    1.0250    793.6    793.6  100.00    0.00  100.00     6.096
```

5.2 LIGHTSHIP

As indicated in the barge Stability booklet the barge has the following properties:

- Lightweight = 1833 t
- LCG = 44.42 m
- VCG = 3.524 m
- TCG = 0.0 m

5.3 DOWNFLOODING POINTS

Down flooding points have been modelled at barge edges and at deck elevation+600mm, Ref./24/.

Following FloodingPoints are included in the calculations:

No.	Type	Fr.AP(M)	Fr.CL(M)	Ab/BASE(M)	Description
1	3	90.000	-13.000	6.700	Ventilator, Tk. 1 PW
2	3	90.000	13.000	6.700	Ventilator, Tk. 1 SW
3	3	1.000	-13.000	6.700	Ventilator, Tk. 5 PW
4	3	1.000	13.000	6.700	Ventilator, TK. 5 SW

5.4 ALLOWABLE LONG. BENDING MOMENT AND SHEAR IN STILL WATER

Section 13 of Ref./24/, indicates the following values of bending moment and shear in still water:

	Max B.M.	W
Hogging	26700 tm	3.24 m^3
Sagging	26130 tm	3.24 m^3
Max shear midship	6150 ton	

6 LOAD-IN SIMULATION FOR BLPH

The load-in was fully simulated using the software MOSES.

The operation was divided into 14 steps plus the initial step 0 that shows the initial ballast pattern. In recognition of the physical limitations of the ballasting system, the following criteria have been applied in the load-in analyses:

- At 3% volume ballast tanks are considered empty.
- at 98% volume ballast tanks are considered full.
- Load-in date: 8th of Sept 2025
- Starting hour: 12.30 AM
- Tide level: +1.50 NAP
- Trailer speed: 9 to 20 m / hour

6.1 TIDE DESCRIPTION

Tide chart for the month of September is presented at the next figure 6.1. The tide range at the load-in quay in Eemshaven is considered significant, therefore ballasting is required to compensate for tide variation.

Weather restriction wind speed of 15 m/s gust apply, according to Table 10-1 of ref. 2 load-in is considered class 1.

Eemshaven

Hoog- en laagwaterstanden en -tijdstippen

September 2025

datum	uu:mm	HW cm NAP	LW cm NAP	datum	uu:mm	HW cm NAP	LW cm NAP	datum	uu:mm	HW cm NAP	LW cm NAP
1	*5:04*	97		**11**	*2:24*	123		**21**	*6:04*		-137
ma	*11:27*		-106	do	*8:49*		-156	zo	*12:01*	155	
	17:32	91			*14:32*	154		*NM 21:54*	*18:33*		-156
	23:48		-97		*21:15*		-154				
2	*6:06*	91		**12**	*2:56*	121		**22**	*0:39*	125	
di	*12:20*		-91	vr	*9:28*		-154	ma	*6:45*		-140
	18:42	81			*15:12*	148			*12:36*	152	
					21:52		-143		*19:11*		-149
3	*0:47*		-82	**13**	*3:31*	119		**23**	*1:09*	122	
wo	*7:33*	90		za	*10:05*		-149	di	*7:20*		-140
	13:38		-79		*15:55*	137			*13:05*	149	
	20:15	81			*22:27*		-129		*19:42*		-142
4	*2:19*		-75	**14**	*4:12*	116		**24**	*1:30*	121	
do	*8:58*	101		zo	*10:45*		-138	wo	*7:51*		-141
	15:26		-90	*LK 12:33*	*16:44*	122			*13:34*	145	
	21:42	92			*23:06*		-113		*20:09*		-138
5	*3:58*		-90	**15**	*5:04*	111		**25**	*1:54*	123	
vr	*10:12*	119		ma	*11:32*		-123	do	*8:19*		-142
	16:39		-113		*17:48*	105			*14:05*	139	
	22:51	107			*23:57*		-95		*20:35*		-135
6	*5:03*		-109	**16**	*6:16*	106		**26**	*2:22*	123	
za	*11:09*	135		di	*12:38*		-107	vr	*8:48*		-139
	17:38		-132		*19:11*	95			*14:35*	130	
	23:44	118							*21:01*		-129
7	*5:57*		-124	**17**	*1:14*		-80	**27**	*2:49*	120	
zo	*11:56*	146		wo	*7:39*	108		za	*9:15*		-132
VM 20:08	*18:29*		-147		*14:13*		-105		*15:02*	119	
					20:41	97			*21:26*		-122
8	*0:30*	123		**18**	*2:51*		-86	**28**	*3:13*	116	
ma	*6:44*		-136	do	*9:07*	121		zo	*9:42*		-124
	12:38	153			*15:42*		-121		*15:29*	109	
	19:14		-156		*22:03*	109			*21:51*		-115
9	*1:12*	124		**19**	*4:11*		-106	**29**	*3:37*	113	
di	*7:28*		-145	vr	*10:19*	139		ma	*10:11*		-116
	13:16	156			*16:55*		-143		*16:02*	100	
	19:56		-161		*23:07*	122			*22:22*		-108
10	*1:50*	124		**20**	*5:14*		-125	**30**	*4:15*	108	
wo	*8:10*		-152	za	*11:16*	151		di	*10:50*		-106
	13:54	157			*17:49*		-156	*EK 1:53*	*16:53*	89	
	20:37		-160		*23:58*	127			*23:06*		-96

Referentievlak: NAP
LAT = NAP-192 cm

Nederlandse tijd
Cursief gedrukte tijdstippen zijn in ZOMERTIJD

Figure 6.1 – Tide variation

6.2 LOAD DESCRIPTION

The SPMT drawing, Ref. Appendix H, shows all data for the load-in from cargo barge.

The following figures show parts of the above-mentioned drawing.

CoG position is taken from ref. /3/,. according to the last issued WCR revision, Topside has the following CoG and weight position relevant to load-in condition:

- Load-in Weight 2280 ton including Spacers and SPMTs;
- X_G = 19.70 m;
- Y_G = 7.90 m;
- Z_G = 29.30 m.

BLPH load-in scheme with CoG position is shown in the next figure.

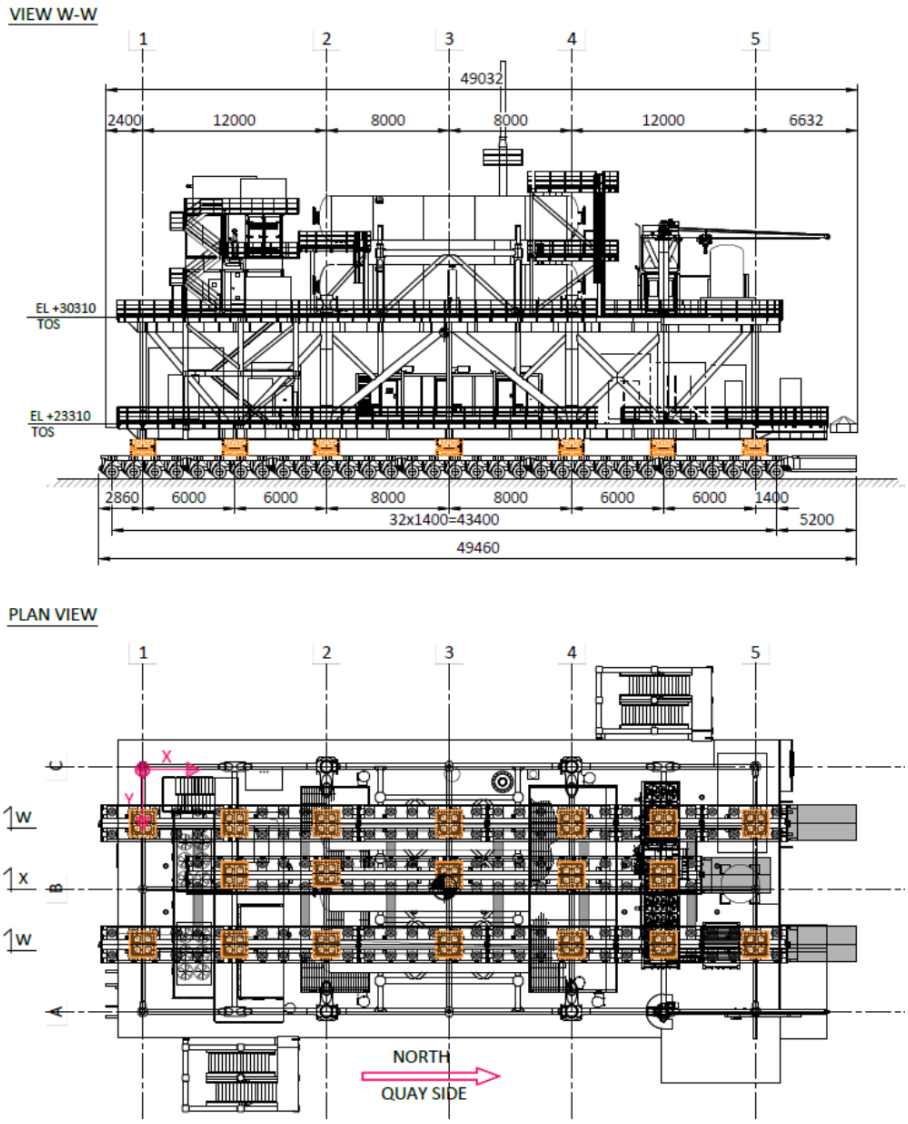


Figure 6.2 – BLPH loadin scheme

The following weights have been applied as external loads to the barge model.

- TP LOW-GRIL WEIGHT = 45 t
- BLPH GRILLAGE WEIGHT = 75 t
- CF WEIGHT = 28 t
- CF GRILLAGE WEIGHT = 0.5 t
- TP WEIGHT = 254.5 t

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TRANSPORT CONFIGURATION: 88 AXLES			
ITEM weight (contingency included)			1802 t
SPMT dead weight			392,1 t
EQUIPMENT weight			87,875 t
TOTAL weight			2282 t
		BASE VALUES	MAX VALUES
Group A 22 AXLES	Weight per axles	28,6 t	36,2 t
	Capacity per axles	48,0 t	48,0 t
	Cylinder pressure	171 bar	219 bar
	Contact pressure under the wheel	8,5 kg/cm^2	9,4 kg/cm^2
	Average Ground pressure	8,4 t/m^2	10,6 t/m^2
Group B 22 AXLES	Weight per axles	28,6 t	36,2 t
	Capacity per axles	48,0 t	48,0 t
	Cylinder pressure	171 bar	219 bar
	Contact pressure under the wheel	8,5 kg/cm^2	9,4 kg/cm^2
	Average Ground pressure	8,4 t/m^2	10,6 t/m^2
Group C-D 44 AXLES	Weight per axles	23,3 t	28,6 t
	Capacity per axles	48,0 t	48,0 t
	Cylinder pressure	139 bar	171 bar
	Contact pressure under the wheel	7,8 kg/cm^2	8,5 kg/cm^2
	Average Ground pressure	6,9 t/m^2	8,4 t/m^2

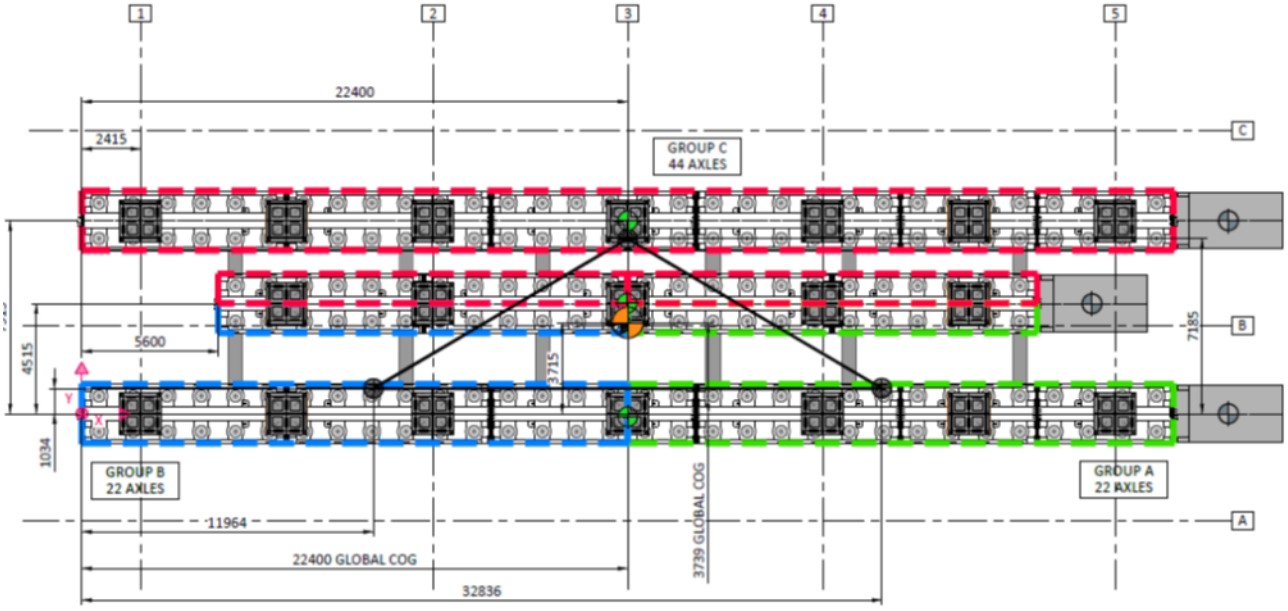


Figure 6.3 – Loads

For load-in simulation the loads have been described as a set of concentrated forces, one per trailer axle, i.e. at 1.4m interval. The following tables report the complete set of loads applied, with ref to the above fig. 6.3.

LoadNam	Weight	Xw	Yw	Zw
GC-1-01	23.3	0.000	-5.542	1.000
GC-1-02	23.3	1.400	-5.542	1.000
GC-1-03	23.3	2.800	-5.542	1.000
GC-1-04	23.3	4.200	-5.542	1.000
GC-1-05	23.3	5.600	-5.542	1.000
GC-1-06	23.3	7.000	-5.542	1.000
GC-1-07	23.3	8.400	-5.542	1.000
GC-1-08	23.3	9.800	-5.542	1.000
GC-1-09	23.3	11.200	-5.542	1.000
GC-1-10	23.3	12.600	-5.542	1.000
GC-1-11	23.3	14.000	-5.542	1.000
GC-1-12	23.3	15.400	-5.542	1.000
GC-1-13	23.3	16.800	-5.542	1.000
GC-1-14	23.3	18.200	-5.542	1.000
GC-1-15	23.3	19.600	-5.542	1.000
GC-1-16	23.3	21.000	-5.542	1.000
GC-1-17	23.3	22.400	-5.542	1.000
GC-1-18	23.3	23.800	-5.542	1.000
GC-1-19	23.3	25.200	-5.542	1.000
GC-1-20	23.3	26.600	-5.542	1.000
GC-1-21	23.3	28.000	-5.542	1.000
GC-1-22	23.3	29.400	-5.542	1.000
GC-1-23	23.3	30.800	-5.542	1.000
GC-1-24	23.3	32.200	-5.542	1.000
GC-1-25	23.3	33.600	-5.542	1.000
GC-1-26	23.3	35.000	-5.542	1.000
GC-1-27	23.3	36.400	-5.542	1.000
GC-1-28	23.3	37.800	-5.542	1.000
GC-1-29	23.3	39.200	-5.542	1.000
GC-1-30	23.3	40.600	-5.542	1.000
GC-1-31	23.3	42.000	-5.542	1.000
GC-1-32	23.3	43.400	-5.542	1.000
GC-2-01	11.65	5.600	-2.967	1.000
GC-2-02	11.65	7.000	-2.967	1.000
GC-2-03	11.65	8.400	-2.967	1.000
GC-2-04	11.65	9.800	-2.967	1.000
GC-2-05	11.65	11.200	-2.967	1.000
GC-2-06	11.65	12.600	-2.967	1.000

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GC-2-07	11.65	14.000	-2.967	1.000
GC-2-08	11.65	15.400	-2.967	1.000
GC-2-09	11.65	16.800	-2.967	1.000
GC-2-10	11.65	18.200	-2.967	1.000
GC-2-11	11.65	19.600	-2.967	1.000
GC-2-12	11.65	21.000	-2.967	1.000
GC-2-13	11.65	22.400	-2.967	1.000
GC-2-14	11.65	23.800	-2.967	1.000
GC-2-15	11.65	25.200	-2.967	1.000
GC-2-16	11.65	26.600	-2.967	1.000
GC-2-17	11.65	28.000	-2.967	1.000
GC-2-18	11.65	29.400	-2.967	1.000
GC-2-19	11.65	30.800	-2.967	1.000
GC-2-20	11.65	32.200	-2.967	1.000
GC-2-21	11.65	33.600	-2.967	1.000
GC-2-22	11.65	35.000	-2.967	1.000
GC-2-23	11.65	36.400	-2.967	1.000
GC-2-24	11.65	37.800	-2.967	1.000
GB-1-01	28.6	22.400	2.258	1.000
GB-1-02	28.6	23.800	2.258	1.000
GB-1-03	28.6	25.200	2.258	1.000
GB-1-04	28.6	26.600	2.258	1.000
GB-1-05	28.6	28.000	2.258	1.000
GB-1-06	28.6	29.400	2.258	1.000
GB-1-07	28.6	30.800	2.258	1.000
GB-1-08	28.6	32.200	2.258	1.000
GB-1-09	28.6	33.600	2.258	1.000
GB-1-10	28.6	35.000	2.258	1.000
GB-1-11	28.6	36.400	2.258	1.000
GB-1-12	28.6	37.800	2.258	1.000
GB-1-13	28.6	39.200	2.258	1.000
GB-1-14	28.6	40.600	2.258	1.000
GB-1-15	28.6	42.000	2.258	1.000
GB-1-16	28.6	43.400	2.258	1.000
GB-2-01	14.3	22.400	-1.517	1.000
GB-2-02	14.3	23.800	-1.517	1.000
GB-2-03	14.3	25.200	-1.517	1.000
GB-2-04	14.3	26.600	-1.517	1.000
GB-2-05	14.3	28.000	-1.517	1.000

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GB-2-06	14.3	29.400	-1.517	1.000
GB-2-07	14.3	30.800	-1.517	1.000
GB-2-08	14.3	32.200	-1.517	1.000
GB-2-09	14.3	33.600	-1.517	1.000
GB-2-10	14.3	35.000	-1.517	1.000
GB-2-11	14.3	36.400	-1.517	1.000
GB-2-12	14.3	37.800	-1.517	1.000
GA-1-01	28.6	0.000	2.258	1.000
GA-1-02	28.6	1.400	2.258	1.000
GA-1-03	28.6	2.800	2.258	1.000
GA-1-04	28.6	4.200	2.258	1.000
GA-1-05	28.6	5.600	2.258	1.000
GA-1-06	28.6	7.000	2.258	1.000
GA-1-07	28.6	8.400	2.258	1.000
GA-1-08	28.6	9.800	2.258	1.000
GA-1-09	28.6	11.200	2.258	1.000
GA-1-10	28.6	12.600	2.258	1.000
GA-1-11	28.6	14.000	2.258	1.000
GA-1-12	28.6	15.400	2.258	1.000
GA-1-13	28.6	16.800	2.258	1.000
GA-1-14	28.6	18.200	2.258	1.000
GA-1-15	28.6	19.600	2.258	1.000
GA-1-16	28.6	21.000	2.258	1.000
GA-2-05	14.3	5.600	-1.517	1.000
GA-2-06	14.3	7.000	-1.517	1.000
GA-2-07	14.3	8.400	-1.517	1.000
GA-2-08	14.3	9.800	-1.517	1.000
GA-2-09	14.3	11.200	-1.517	1.000
GA-2-10	14.3	12.600	-1.517	1.000

Table 6.1 – Axles loads

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6.3 BALLAST WATER MANAGEMENT

Barge is equipped with an internal ballast management system; therefore, water inside the barge is discharged to the sea. Water requested for load-in is pumped in/out using external ballast pumps and no mix will occur between Italian and local waters.

6.4 LOAD-IN SEQUENCE

The above-described operation sequence was divided into the following steps:

Step 0 Barge ready for starting load-in of topside. The ballast pattern is selected in order of having the barge deck at the same elevation as the quay in high tide.

Step 1 shift of 5.50m towards bow

Step 2 shift of 5.66m towards bow

Trailers advance 4.2 m: next 3+3 axles of trailers of group C and B on board. Total axles on board: 8.

Step 3 first axle of group A and C on link beam

Step 4 Trailers advance 2.80 m

Step 5 Trailers advance 2.80 m: internal train touching the link beam

Step 6 Trailers advance 4.2 m

Step 7 Trailers advance 4.2 m

Step 8 Trailers advance 4.2 m

Step 9 Trailers advance 4.2 m

Step 10 Trailers advance 4.2 m

Step 11 Trailers advance 4.2 m

Step 12 Trailers advance 2.8 m

Step 13 Trailers advance 2.8 m

Step 14 Trailers advance 2.80 m. BLPH offloaded

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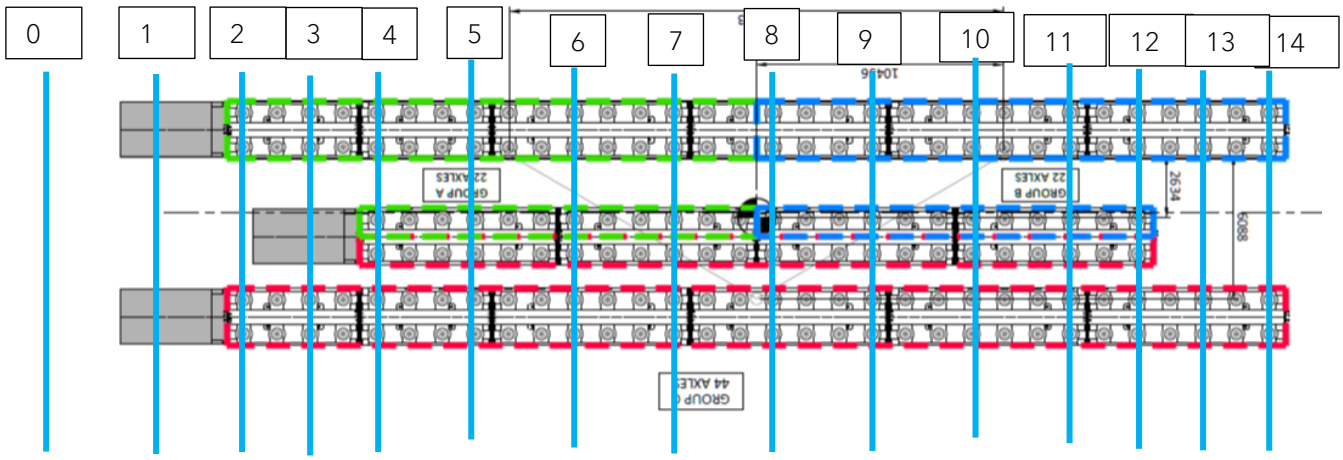


Figure 6.4 – Loadout Phases

The table below summarizes the ballast variations.

TECON CW BLPH LOADIN with TIDE 8/9/2025

BALLASTING SUMMARY

STEP	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TRAVEL DISTANCE [m]	0	5.5	11.16	13.96	16.76	20.96	25.16	29.36	33.56	37.76	41.96	46.16	48.96	51.76	54.61
WEIGHT ON BARGE [t]	2282	2282	2282	2180	2076	1842	1609	1375	1142	908	675	441	285	156	0
VERVECE BARGE DATA:															
Displacement [t]	7135	7135	7014	6909	6791	6646	6478	6096	5870	5639	5405	5145	4632	4375	4139
Draft at Bow[m]	3.12	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.5	2.4	2.29	2.07	1.96	1.83
Draft at Stern[m]	3.12	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.5	2.4	2.29	2.07	1.96	1.88
Pitch Angle [deg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03
Roll Angle [deg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08
GMT (m)	18.13	18.04	18.35	18.64	18.98	19.38	20.06	21.38	22.37	23.43	24.51	25.91	28.67	30.35	32.32
Draft at BOWPO[m]		3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.85
Draft at BOWST[m]		3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.81
Draft at STEPO[m]		3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.90
Draft at STEST[m]		3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.86
TIDE DATA: Beginning date 2025/09/08 12:30															
Date/Time at phase's begin		08/ 12:30	08/ 12:50	08/ 13:10	08/ 13:22	08/ 13:34	08/ 13:46	08/ 13:58	08/ 14:10	08/ 14:22	08/ 14:34	08/ 14:46	08/ 14:58	08/ 15:10	08/ 15:20
Initial Tide [m]		1.52	1.52	1.47	1.428	1.379	1.319	1.249	1.09	0.995	0.898	0.798	0.689	0.47	0.36
Date/Time at phase's end		08/ 12:50	08/ 13:10	08/ 13:22	08/ 13:34	08/ 13:46	08/ 13:58	08/ 14:10	08/ 14:22	08/ 14:34	08/ 14:46	08/ 14:58	08/ 15:10	08/ 15:20	08/ 15:30
Final Tide [m]		1.52	1.47	1.428	1.379	1.319	1.249	1.09	0.995	0.898	0.798	0.689	0.47	0.36	0.25
Incremental Tide [m]		0	-0.05	-0.043	-0.049	-0.06	-0.07	-0.159	-0.095	-0.098	-0.099	-0.11	-0.219	-0.11	-0.11
Step Duration [min]		20	20	12	12	12	12	12	12	12	12	12	12	10	10
Speed [m/h]		16.5	16.98	14	14	21	21	21	21	21	21	21	14	16.8	17.1
ACTIVE TANKS BALLAST WEIGHT [t]															
2PW	270	187	26								119	192	152	169	249
2SW	548	326	132	98	68						101	157	106	113	100
3PW	26					84	166	172	254	346					
3SW	26					113	178	166	231	305					
4PW	26	109	209	214	213										
4SW	26	248	381	409	425										
5PW	691					695	664	602	541	468	392	324	196	125	24
5SW	786					726	676	596	517	426	375	289	149	70	24
ACTIVE TANKS SOUNDING [m]															
2PW	1.89	1.31	0.18								0.83	1.34	1.07	1.19	1.74
2SW	3.83	2.28	0.93	0.69	0.48						0.71	1.1	0.74	0.8	0.71
3PW	0.18					0.59	1.16	1.2	1.77	2.42					
3SW	0.18					0.79	1.25	1.16	1.61	2.14					
4PW	0.18	0.77	1.47	1.5											
4SW	0.18	1.74	2.67	2.86	2.97										
5PW	5.38					5.41	5.18	4.75	4.32	3.8	3.27	2.76	1.76	1.16	0.18
5SW	6.04					5.62	5.27	4.71	4.15	3.51	3.14	2.49	1.37	0.66	0.18
ACTIVE TANKS ULLAGE [m]															
2PW	4.21	4.79	5.91								5.26	4.75	5.03	4.91	4.36
2SW	2.27	3.82	5.17	5.4	5.61						5.38	5	5.35	5.3	5.39
3PW	5.91					5.5	4.93	4.89	4.32	3.68					
3SW	5.91					5.3	4.85	4.93	4.48	3.96					
4PW	5.91	5.33	4.63	4.59											
4SW	5.91	4.36	3.43	3.24	3.13										
5PW	0.72					0.69	0.91	1.35	1.78	2.3	2.83	3.33	4.34	4.94	5.91
5SW	0.06					0.48	0.83	1.39	1.94	2.59	2.96	3.6	4.73	5.43	5.91
BALLAST OPERATION (ballast variation) [t]															
2PW		-83	-161								92	73	-39	17	80
2SW		-222	-194	-34	-30						33	56	-51	8	-13
3PW						58	82	6	82	92					
3SW						87	65	-12	65	75					
4PW		83	100	5	-1										
4SW		222	133	27	16										
5PW						4	-32	-62	-61	-73	-75	-69	-128	-71	-101
5SW						-60	-50	-80	-79	-91	-51	-86	-139	-80	-46
LAST OPERATION (Pump Req'd Capacity)[m^3/h]															
2PW		-243	-471								449	356	-190	100	468
2SW		-650	-568	-166	-146						161	273	-249	47	-76
3PW						283	400	29	400	449					
3SW						424	317	-59	317	366					
4PW		243	293	24	-5										
4SW		650	389	132	78										
5PW						20	-156	-302	-298	-356	-366	-337	-624	-416	-591
5SW						-293	-244	-390	-385	-444	-249	-420	-678	-468	-269

Table 6.2 – Loadin summary Tables

6.5 MOSES OUTPUT SUMMARY

Weight ballast (t)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Barge draft [m]	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.83
2PW	187	26	26	26						119	192	152	169	249
2SW	326	132	98	68						101	157	106	113	100
3PW					84	166	172	254	346					
3SW					113	178	166	231	305					
4PW	109	209	214	213										
4SW	248	381	409	425										
5PW					695	664	602	541	468	392	324	196	125	24
5SW					726	676	596	517	426	375	289	149	70	24

Ballast Sounding (m)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Barge draft [m]	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.83
2PW	1.31	0.18	0.18	0.18						0.83	1.34	1.07	1.19	1.74
2SW	2.28	0.93	0.69	0.48						0.71	1.1	0.74	0.8	0.71
3PW					0.59	1.16	1.2	1.77	2.42					
3SW					0.79	1.25	1.16	1.61	2.14					
4PW	0.77	1.47	1.5	1.49										
4SW	1.74	2.67	2.86	2.97										
5PW					5.41	5.18	4.75	4.32	3.8	3.27	2.76	1.76	1.16	0.18
5SW					5.62	5.27	4.71	4.15	3.51	3.14	2.49	1.37	0.66	0.18

Weight ballast Variation (t)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Barge draft [m]	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.83
2PW	-83	-161								92	73	-39	17	80
2SW	-222	-194	-34	-30						33	56	-51	8	-13
3PW					58	82	6	82	92					
3SW					87	65	-12	65	75					
4PW	83	100	5	-1										
4SW	222	133	27	16										
5PW					4	-32	-62	-61	-73	-75	-69	-128	-71	-101
5SW					-60	-50	-80	-79	-91	-51	-86	-139	-80	-46

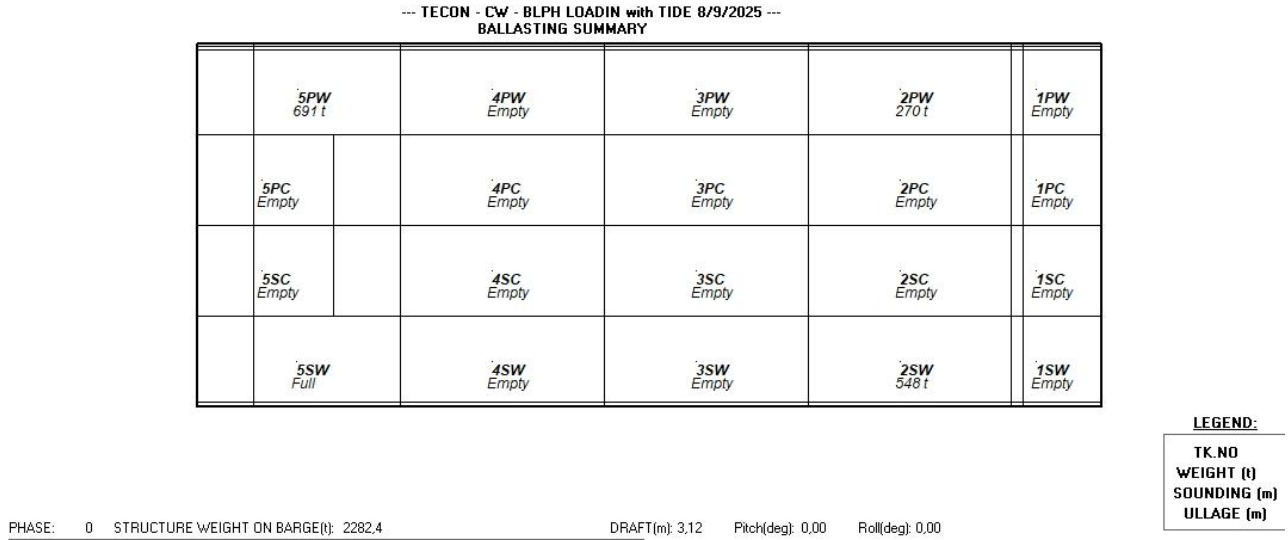
Ballast Ullage (t)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Barge draft [m]	3.12	3.07	3.03	2.98	2.92	2.85	2.69	2.59	2.50	2.40	2.29	2.07	1.96	1.83
2PW	4.79	5.91	5.91	5.91						5.26	4.75	5.03	4.91	4.36
2SW	3.82	5.17	5.4	5.61						5.38	5	5.35	5.3	5.39
3PW					5.5	4.93	4.89	4.32	3.68					
3SW					5.3	4.85	4.93	4.48	3.96					
4PW	5.33	4.63	4.59	4.6										
4SW	4.36	3.43	3.24	3.13										
5PW					0.69	0.91	1.35	1.78	2.3	2.83	3.33	4.34	4.94	5.91
5SW					0.48	0.83	1.39	1.94	2.59	2.96	3.6	4.73	5.43	5.91

Table 6.3 – Loadin summary Tables - Detailed

Ballast variation lower than 15 ton are to be considered for numerical stability only.

6.5.1 Step 0: barge ready for loadin. Barge is with 3.10m draft evenkeel



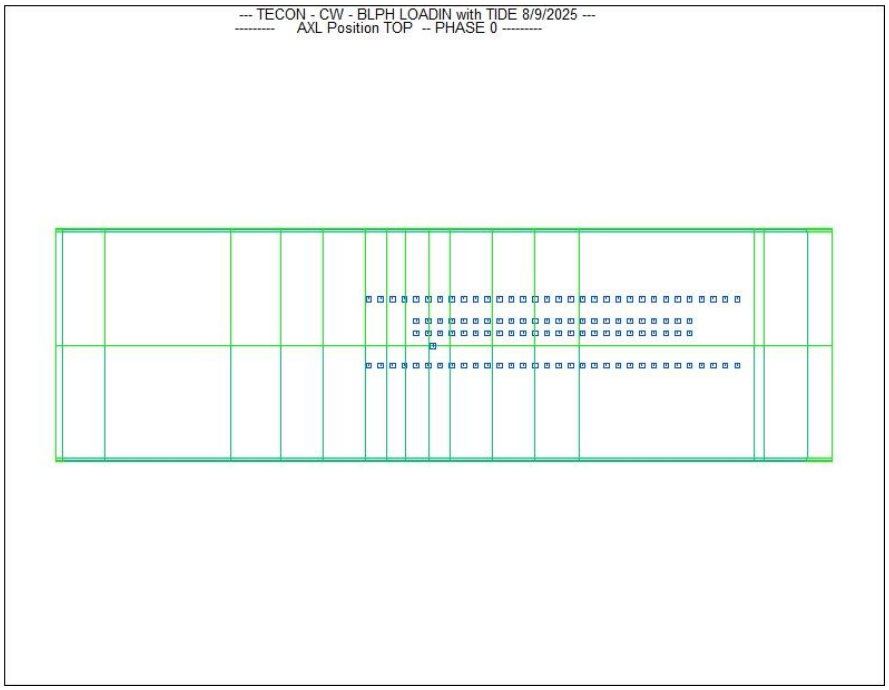
PHASE: 0 STRUCTURE WEIGHT ON BARGE(t): 2282,4 DRAFT(m): 3,12 Pitch(deg): 0,00 Roll(deg): 0,00

Phase -0-

Tank No	Ballast	Sounding	Ullage	Tank No	Ballast	Sounding	Ullage
1PC	7	,18	5,91	3SC	26	,18	5,91
1PW	7	,18	5,91	3SW	26	,18	5,91
1SC	7	,18	5,91	4PC	26	,18	5,91
1SW	7	,18	5,91	4PW	26	,18	5,91
2PC	26	,18	5,91	4SC	26	,18	5,91
2PW	270	1,89	4,21	4SW	26	,18	5,91
2SC	26	,18	5,91	5PC	15	,18	5,91
2SW	548	3,83	2,27	5PW	691	5,38	,72
3PC	26	,18	5,91	5SC	15	,18	5,91
3PW	26	,18	5,91	5SW	786	6,04	,06

Figure 6.5 – Load-in Phase 0

6.5.2 Step 1: transfer towards barge BOW



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW	4PW 83 t	3PW	2PW -83 t	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW	4SW 222 t	3SW	2SW -222 t	1SW

PHASE: 1
TRAVEL DISTANCE: 5,50

DRAFT(m): 3,12 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 2282,4

	Date/Time	Tide(m)
Initial	08/ 12:30	1,52
Final	08/ 12:50	1,52

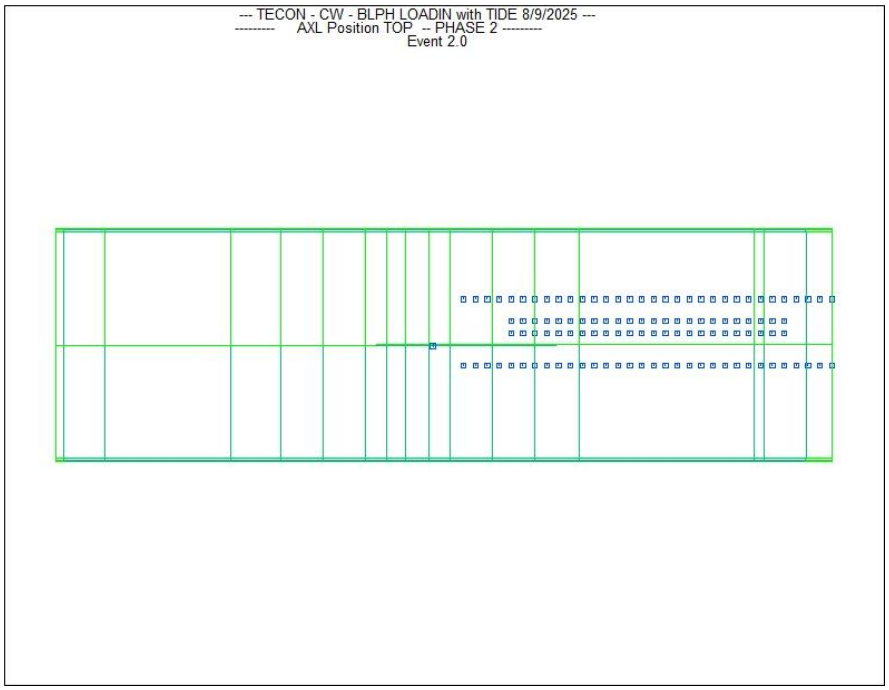
Step Duration (min)	20,
Speed (m/h)	16,50

Phase -1-

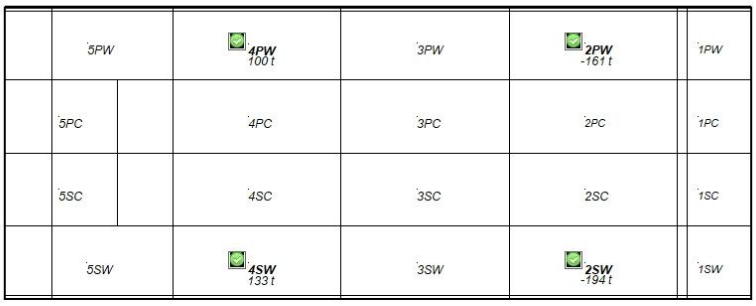
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	-83	1,31	-,58	4,79	,58	243,
2SW	-222	2,28	-1,55	3,82	1,55	650,
4PW	83	,77	,59	5,33	-,59	243,
4SW	222	1,74	1,55	4,36	-1,55	650,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.3 Step 2: transfer towards barge BOW



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 2
TRAVEL DISTANCE: 11,16

	Date/Time	Tide(m)
Initial	08/ 12:50	1,52
Final	08/ 13:10	1,47

Step Duration (min)	20,
Speed (m/h)	16,98

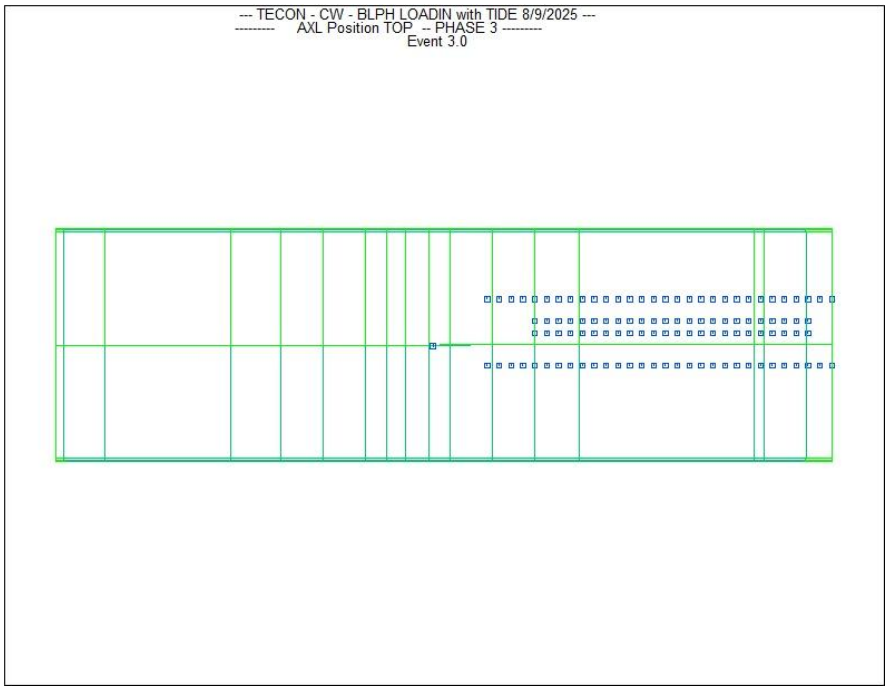
DRAFT(m): 3,07 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 2282,4

Phase -2-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	-161	,18	-1,13	5,91	1,13	471,
2SW	-194	,93	-1,35	5,17	1,35	568,
4PW	100	1,47	,70	4,63	-,70	293,
4SW	133	2,67	,93	3,43	-,93	389,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.4 Step 3



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW	4PW 5 t	3PW	2PW	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW	4SW 27 t	3SW	2SW -34 t	1SW

PHASE: 3
TRAVEL DISTANCE: 13,96

DRAFT(m): 3,03 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 2179,8

	Date/Time	Tide(m)
Initial	08/ 13:10	1,47
Final	08/ 13:22	1,43

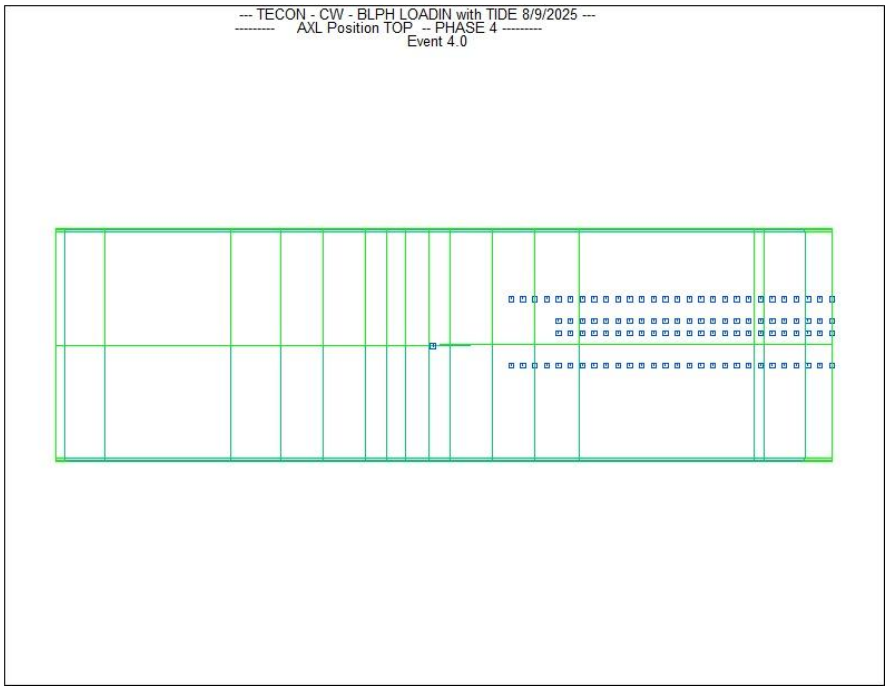
Step Duration (min)	12,
Speed (m/h)	14,00

Phase -3-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2SW	-34	,69	-,24	5,40	,24	166,
4PW	5	1,50	,04	4,59	-,04	24,
4SW	27	2,86	,19	3,24	-,19	132,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.5 Step 4



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW	4PW	3PW	2PW	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW	4SW 16 t	3SW	2SW -30 t	1SW

PHASE: 4
TRAVEL DISTANCE: 16,76

DRAFT(m): 2,98 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 2076

	Date/Time	Tide(m)
Initial	08/ 13:22	1,43
Final	08/ 13:34	1,38

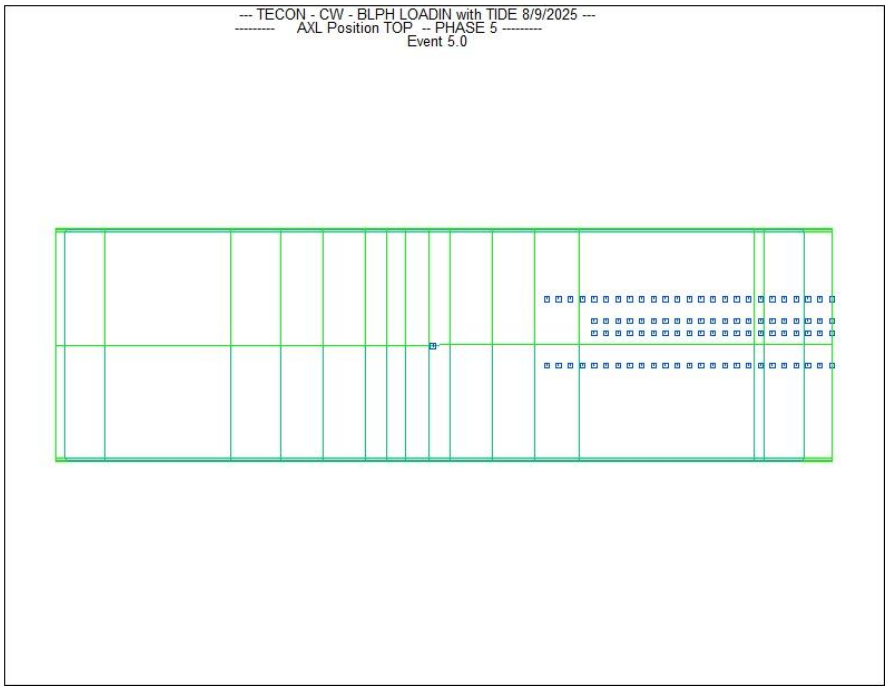
Step Duration (min)	12,
Speed (m/h)	14,00

Phase -4-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2SW	-30	,48	-,21	5,61	,21	146,
4SW	16	2,97	,11	3,13	-,11	78,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.6 Step 5



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 5
TRAVEL DISTANCE: 20,96

DRAFT(m): 2,92 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 1842,5

	Date/Time	Tide(m)
Initial	08/ 13:34	1,38
Final	08/ 13:46	1,32

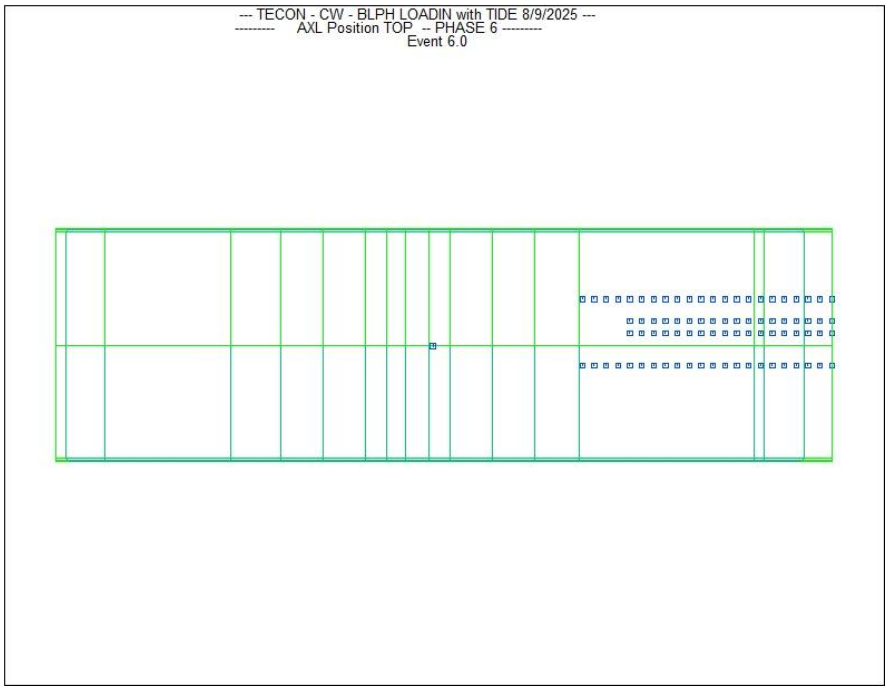
Step Duration (min)	12,
Speed (m/h)	21,00

Phase -5-

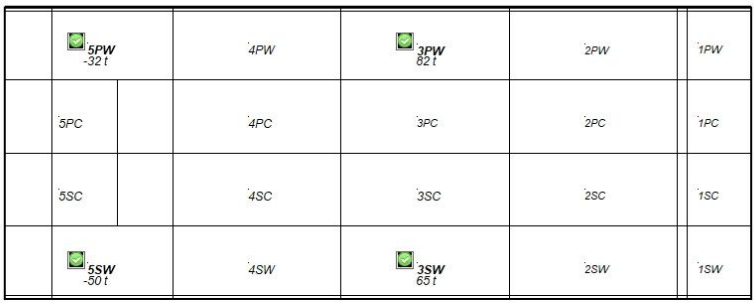
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
3PW	58	,59	,41	5,50	-,41	283,
3SW	87	,79	,61	5,30	-,61	424,
5PW	4	5,41	,03	,69	-,03	20,
5SW	-60	5,62	-,42	,48	,42	293,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.7 Step 6



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 6
TRAVEL DISTANCE: 25,16

DRAFT(m): 2,85 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 1608,9

	Date/Time	Tide(m)
Initial	08/ 13:46	1,32
Final	08/ 13:58	1,25

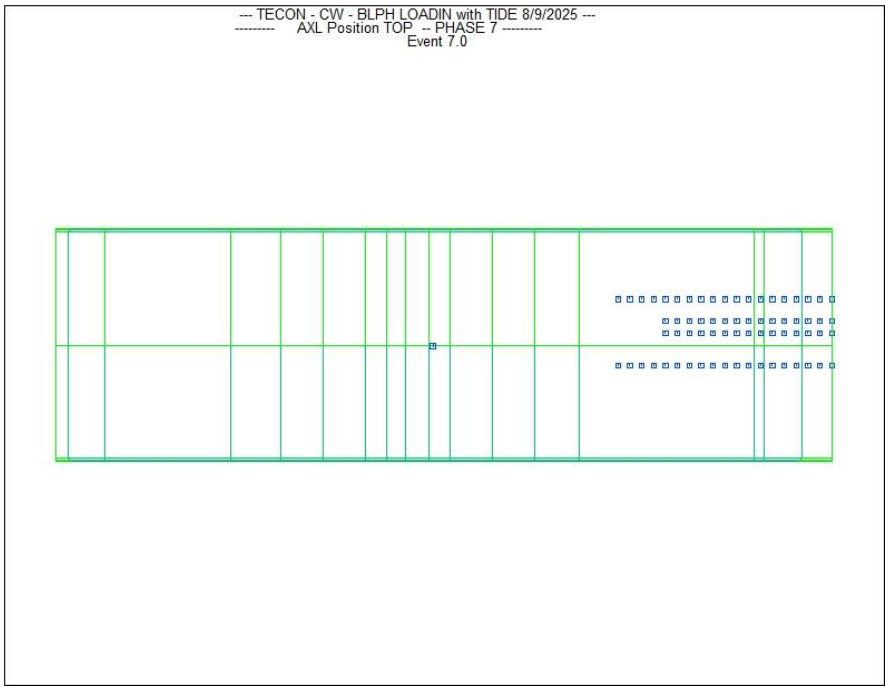
Step Duration (min)	12,
Speed (m/h)	21,00

Phase -6-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
3PW	82	1,16	,57	4,93	-,57	400,
3SW	65	1,25	,45	4,85	-,45	317,
5PW	-32	5,18	-,22	,91	,22	156,
5SW	-50	5,27	-,35	,83	,35	244,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.8 Step 7



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 7
TRAVEL DISTANCE: 29,36

DRAFT(m): 2,69 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 1375,4

	Date/Time	Tide(m)
Initial	08/ 13:58	1,25
Final	08/ 14:10	1,09

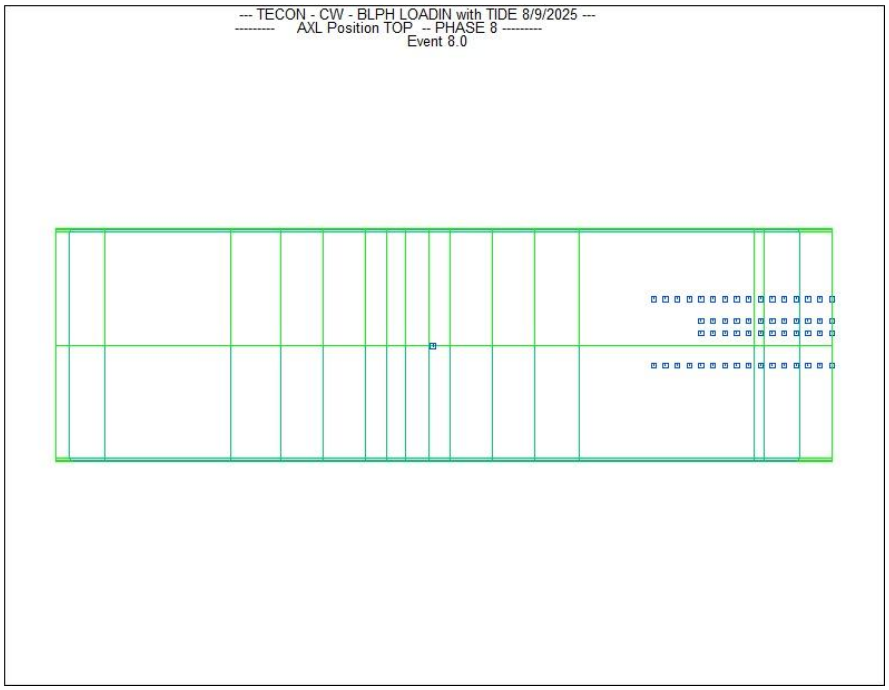
Step Duration (min)	12,
Speed (m/h)	21,00

Phase -7-

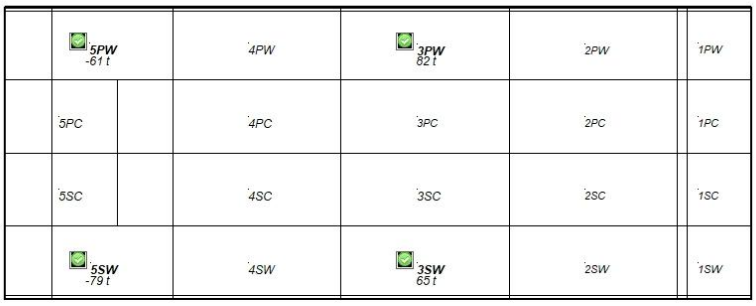
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
3PW	6	1,20	,04	4,89	-,04	29,
3SW	-12	1,16	-,08	4,93	,08	59,
5PW	-62	4,75	-,44	1,35	,44	302,
5SW	-80	4,71	-,56	1,39	,56	390,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.9 Step 8



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 8
TRAVEL DISTANCE: 33,56

DRAFT(m): 2,59 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 1141,8

	Date/Time	Tide(m)
Initial	08/ 14:10	1,09
Final	08/ 14:22	1,00

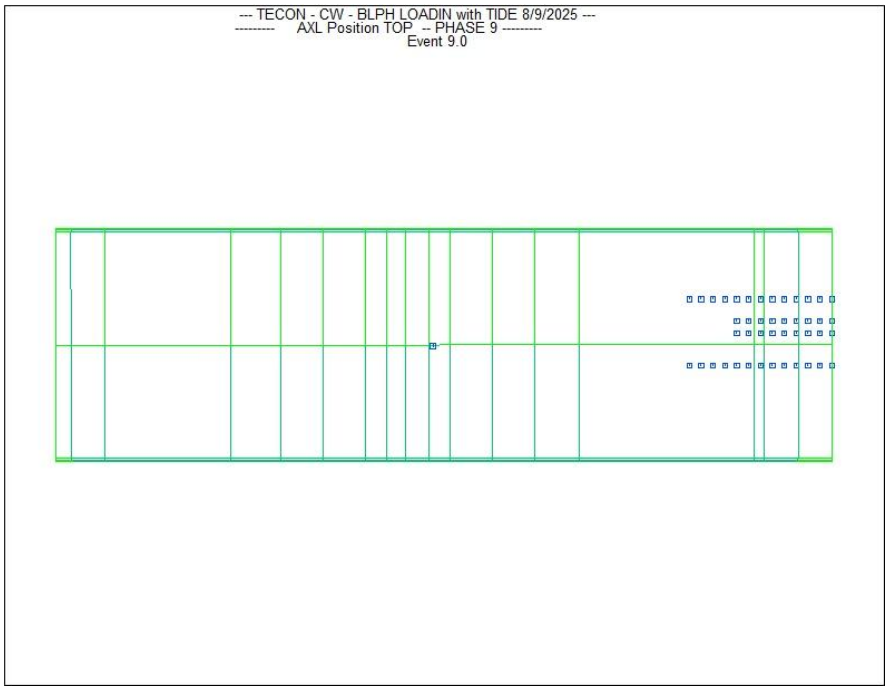
Step Duration (min)	12,
Speed (m/h)	21,00

Phase -8-

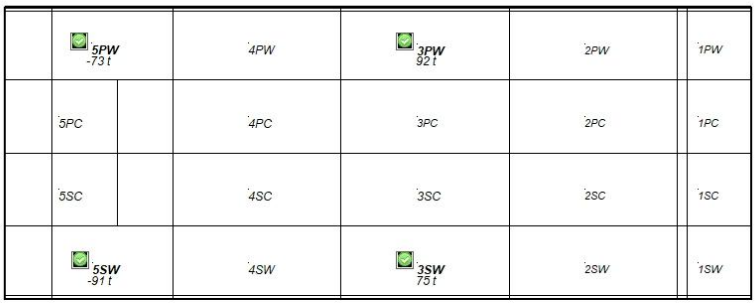
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
3PW	82	1,77	,57	4,32	-,57	400,
3SW	65	1,61	,45	4,48	-,45	317,
5PW	-61	4,32	-,43	1,78	,43	298,
5SW	-79	4,15	-,55	1,94	,55	385,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.10 Step 9



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 9
TRAVEL DISTANCE: 37,76

DRAFT(m): 2,50 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 908,3

	Date/Time	Tide(m)
Initial	08/ 14:22	1,00
Final	08/ 14:34	0,90

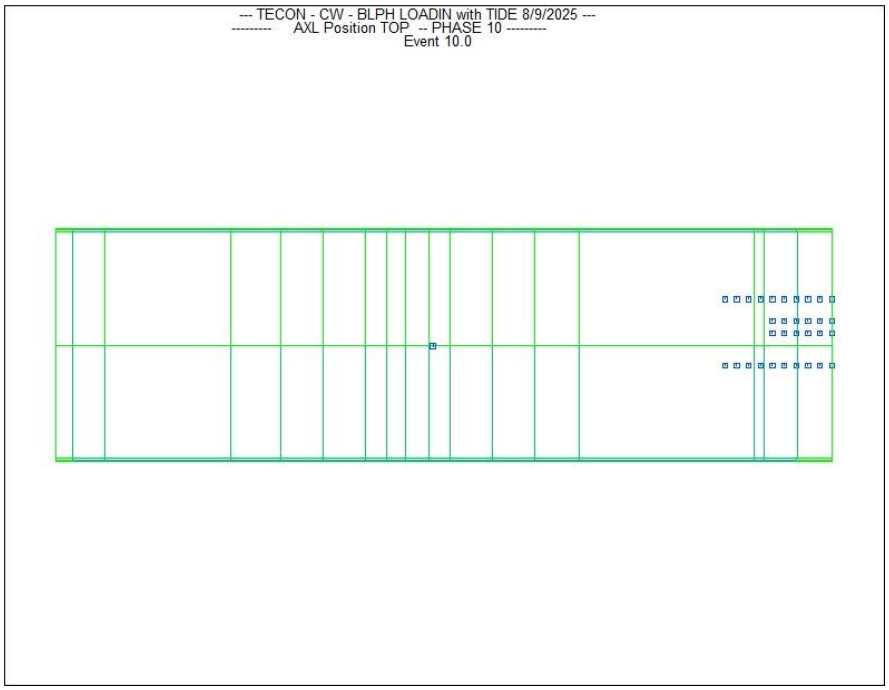
Step Duration (min)	12,
Speed (m/h)	21,00

Phase -9-

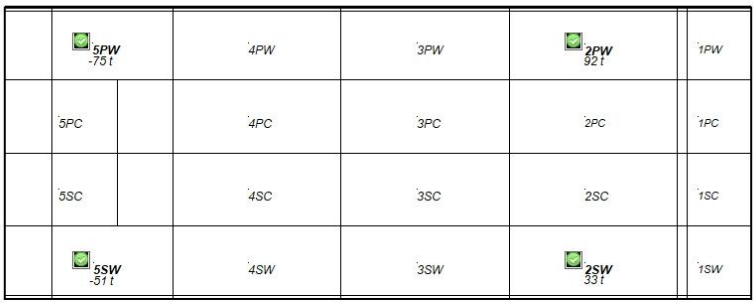
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
3PW	92	2,42	,64	3,68	-,64	449,
3SW	75	2,14	,52	3,96	-,52	366,
5PW	-73	3,80	-,52	2,30	,52	356,
5SW	-91	3,51	-,64	2,59	,64	444,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.11 Step 10



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 10
TRAVEL DISTANCE: 41,96

	Date/Time	Tide(m)
Initial	08/ 14:34	0,90
Final	08/ 14:46	0,80

Step Duration (min)	12,
Speed (m/h)	21,00

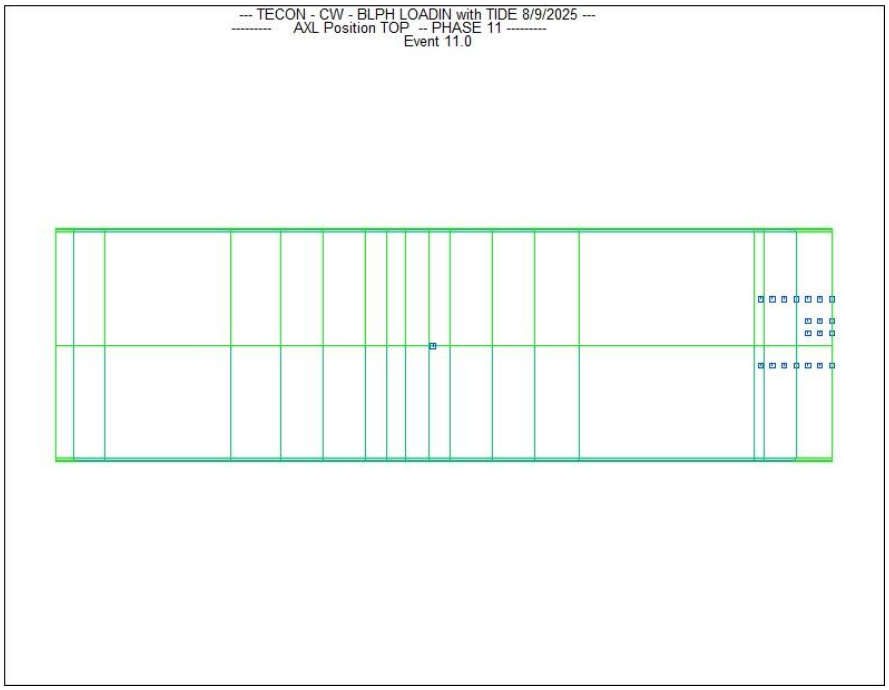
DRAFT(m): 2,40 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 674,7

Phase -10-

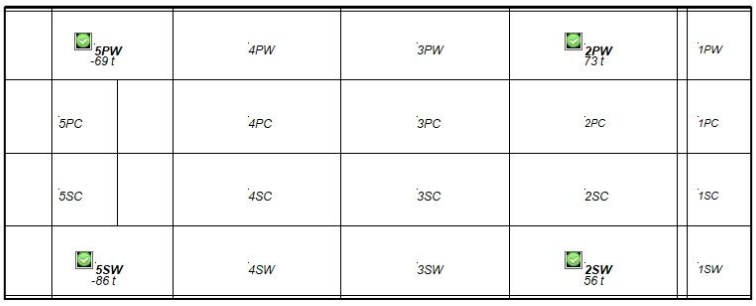
Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	92	,83	,65	5,26	-,65	449,
2SW	33	,71	,23	5,38	-,23	161,
5PW	-75	3,27	-,53	2,83	,53	366,
5SW	-51	3,14	-,37	2,96	,37	249,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.12 Step 11



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY



PHASE: 11
TRAVEL DISTANCE: 46,16

	Date/Time	Tide(m)
Initial	08/ 14:46	0,80
Final	08/ 14:58	0,69

Step Duration (min)	12,
Speed (m/h)	21,00

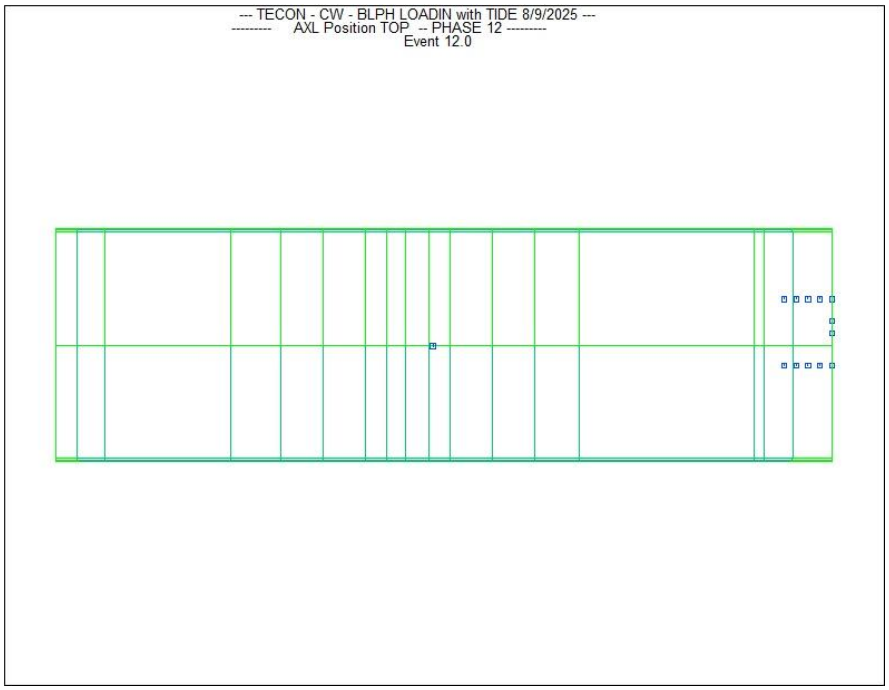
DRAFT(m): 2,29 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 441,1

Phase -11-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	73	1,34	,51	4,75	-,51	356,
2SW	56	1,10	,39	5,00	-,39	273,
5PW	-69	2,76	-,51	3,33	,51	337,
5SW	-86	2,49	-,65	3,60	,65	420,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.13 Step 12



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW -128 t	4PW	3PW	2PW -39 t	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW -139 t	4SW	3SW	2SW -51 t	1SW

PHASE: 12
TRAVEL DISTANCE: 48,96

DRAFT(m): 2,07 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 285,4

	Date/Time	Tide(m)
Initial	08/ 14:58	0,69
Final	08/ 15:10	0,47

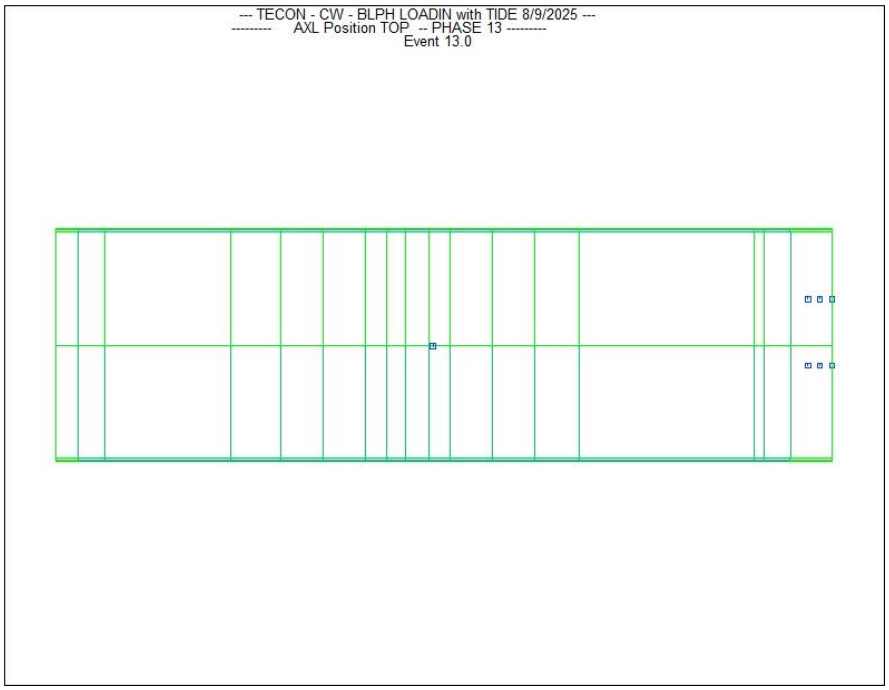
Step Duration (min)	12,
Speed (m/h)	14,00

Phase -12-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	-39,	1,07	-,27	5,03	,27	190,
2SW	-51	,74	-,36	5,35	,36	249,
5PW	-128,	1,76	-1,00	4,34	1,00	624,
5SW	-139	1,37	-1,13	4,73	1,13	678,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.14 Step 13: All the axles on board.



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW -71 t	4PW	3PW	2PW 17 t	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW -80 t	4SW	3SW	2SW 8 t	1SW

PHASE: 13
TRAVEL DISTANCE: 51,76

DRAFT(m): 1,96 Pitch(deg): 0,00 Roll(deg): 0,00
WEIGHT ON BOARD(t): 155,7

	Date/Time	Tide(m)
Initial	08/ 15:10	0,47
Final	08/ 15:20	0,36

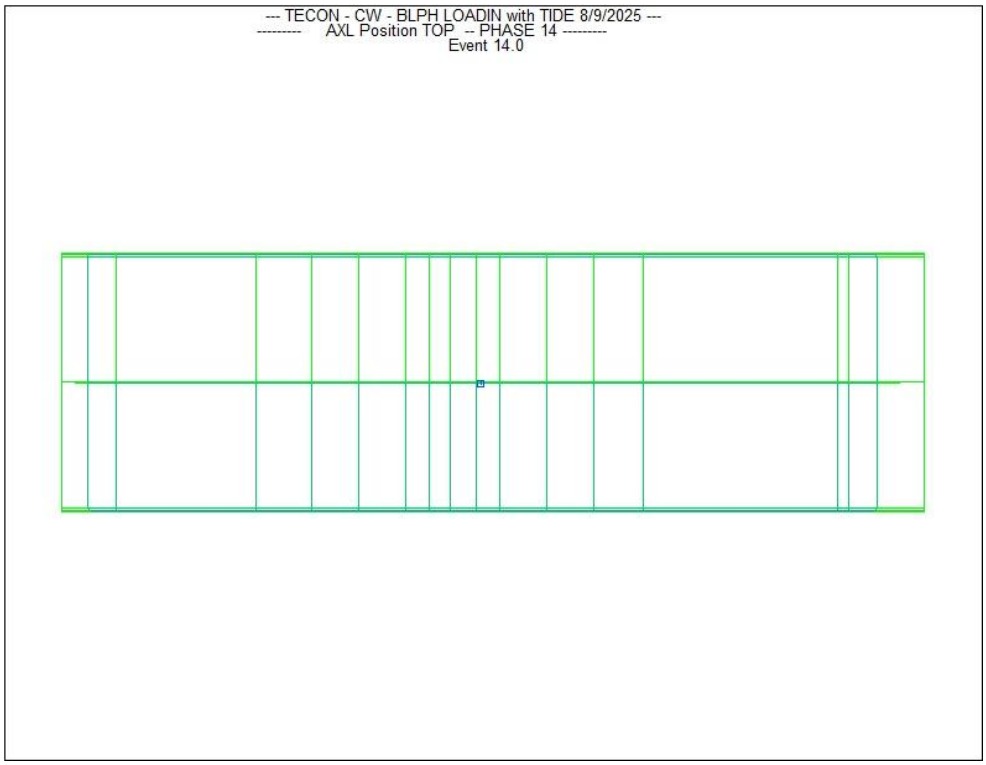
Step Duration (min)	10,
Speed (m/h)	16,80

Phase -13-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	17	1,19	,12	4,91	-,12	100,
2SW	8	,80	,05	5,30	-,05	47,
5PW	-71	1,16	-,60	4,94	,60	416,
5SW	-80	,66	-,70	5,43	,70	468,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.5.15 Step 14: Final phase



--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
BALLASTING SUMMARY

	5PW -101 t	4PW	3PW	2PW 80 t	1PW
	5PC	4PC	3PC	2PC	1PC
	5SC	4SC	3SC	2SC	1SC
	5SW -46 t	4SW	3SW	2SW -13 t	1SW

PHASE: 14
TRAVEL DISTANCE: 54,61

DRAFT(m): 1,85 Pitch(deg): 0,03 Roll(deg): 0,08
WEIGHT ON BOARD(t): 0

	Date/Time	Tide(m)
Initial	08/ 15:20	0,36
Final	08/ 15:30	0,25

Step Duration (min)	10,
Speed (m/h)	17,10

Phase -14-

Tank No	Ballast Change	Sounding	Sounding Change	Ullage	Ullage Change	Pump Capacity
2PW	80	1,74	,55	4,36	-,55	468,
2SW	-13	,71	-,09	5,39	,09	76,
5PW	-101	,18	-,97	5,91	,97	591,
5SW	-46	,18	-,48	5,91	,48	269,

LEGEND:
TK.NO
WEIGHT (t)
SOUNDING (m)
ULLAGE (m)
CAPACITY (m^3/h)

6.6 BARGE LONGITUDINAL STRUCTURAL CHECKS

The longitudinal strength analysis was carried out for the still water condition. The complete MOSES output is reported in Appendix A.

The allowable stresses were assumed as follows:

- Fy = 235 N/mm^2 yield stress
- σ_{all} = 0.66 x Fy = 155 N/mm^2
- τ_{all} = 0.4 x Fy = 94 N/mm^2

For normal stress, the maximum usage factor, i.e. the maximum bending / allowable stress ratio, is 0.46 in phase 4 of loadin operation.

- UF = 17304/26130 = 0.66

For shear stress, the maximum usage factor is:

- UF_{shear} = 696/6150 = 0.11

in phase 4.

Values of BM and Shear along the longitudinal section of the cargo barge were compared with the admissible values shown in section 5.4. All the values are within allowable ones.

The maximum deflection results 5.46 cm (ph.5).

7 BALLASTING SYSTEM CHECKS

7.1 BALLAST TANK CAPACITY

The tanks filling was included in a range from 3% to 98% during all the Load-in and satisfies the requirement of table 4-1, section 4.5.3 of Ref. /2/ for Load-in class 1.

7.2 BALLAST PUMPING CAPACITY

Ballast pumps must be tried (turning on and off the pumps) to ensure perfect functioning of system/item within 24h of the start of load-out.

Pumping capacity of the external pumps consists of 10 pumps, with a rated capacity of min 450 m3/h (+ 2 pumps spare).

Load out weight:	2300 t
Cross over estimated duration:	3.5 Hours
Capacity required for the load compensation	660 t/h

Capacity required for tide compensation:

- @max tide speed: 0.80 m/h x (2.52 t/mmx1000mm) = 2016 t/h
- Average: 3.17 m x 91.4 x 27.4 = 7940 t / 6 hours = 1323 t/h

A total of 660+1323 = 1983 t/h is the min. required to compensate tide + load transfer.

a) Normal operation - Load transfer as planned (including tide compensation): 200% capacity with intact system and 120% with 1 pump failed.

Capacity with intact system = 10*450 m3/h = 4500 m3/h

Intact system ratio = 4500/1983 = 2.26 > 2.0 (OK)

Capacity with 1 pump failed = 9*450 m3/h = 4050 m3/h

Damaged system ratio = 4050/1983 = 2.04 > 1.3 (OK)

b) Load transfer stopped (tide only): 150% capacity with intact system and 100% capacity with one pump failed.

Capacity with intact system = 8x450 = 3600 m3/h

Intact system ratio = 3600/2016 = 1.78 > 1.5 (OK)

Capacity with 1 pump failed = replaced by 1 spare or 1 not used for load transfer being stopped

8 ANNEX A: BARGE INTACT STABILITY – COMPLETE MOSES OUTPUT

In the following tables, the allowable deflection was conventionally set equal to unity, therefore the values indicated under the columns with heading Deflection / Allowable are actually the computed deflections.

8.1 BLPH

```
                                  ******************************
*                                       ***  MOSES   ***                                                    *
 *                                       ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                              *
*          ---------     Intact Stability Check     -- PHASE 0 ---------                                   *
*                                                                                                          *
************************************************************************************************************

                    +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                    ======================================================================

                     Process is 0: Units Are Degrees, Meters, and M-Tons Unless Specified

                                   Results Are Reported In Body System

                        Draft =     3.12 Roll Angle =     0.00 Pitch Angle =     0.00

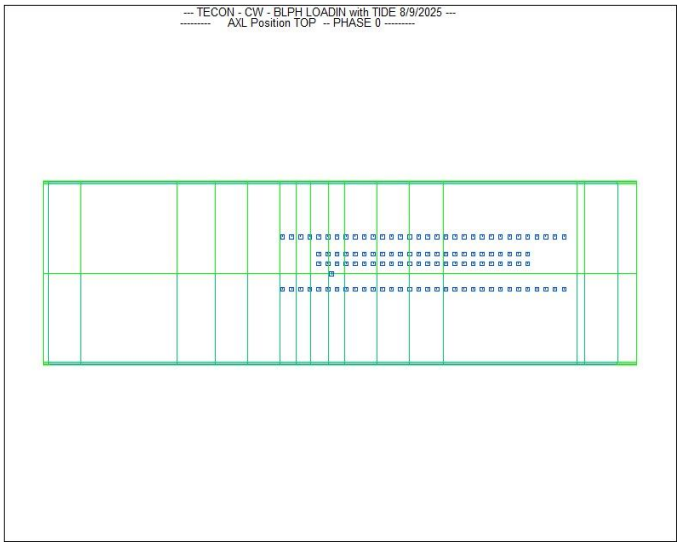
                                   Wet Radii Of Gyration About CG

                                K-X =     8.19 K-Y =    25.73 K-Z =    26.35

                                        GMT =    18.13 GML =   211.81

                                /-- Center of Gravity ---/  Sounding   % Full
                          Name   Weight     ---X---  ---Y---  ---Z---  -------- --------

                                ----------------  Part AXL0       ------------
                                LOAD_GRO   2282.40    32.88    -1.49     7.10
                                ----------------  Part CF         ------------
                                LOAD_GRO     30.00    69.38    11.22     8.10
                                ----------------  Part GRI&SF-B   ------------
                                LOAD_GRO     75.00    30.86    -1.14     7.35
                                ----------------  Part GRI&SF-C   ------------
                                LOAD_GRO      0.50    67.44    11.22     7.10
                                ----------------  Part GRI&SF-T   ------------
                                LOAD_GRO     45.00    65.20    -2.92     7.40
                                ----------------  Part TP         ------------
                                LOAD_GRO    254.50    65.54    -2.14     9.35
                                ----------------  Part VERVECE    ------------
                                LOAD_GRO   1832.80    47.02     0.00     3.52
                                           --- Contents ---
                           1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                           1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                           1SC          7.05     5.60     3.43     0.11     0.18     3.00
                           1SW          7.05     5.60    10.28     0.11     0.18     3.00
                           2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                           2PW        270.03    19.43   -10.27     0.95     1.89    30.91
                           2SC         26.21    19.43     3.43     0.09     0.18     3.00
                           2SW        548.08    19.43    10.28     1.92     3.83    62.74
                           3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                           3PW         26.21    40.01   -10.28     0.09     0.18     3.00
                           3SC         26.21    40.01     3.43     0.09     0.18     3.00
                           3SW         26.21    40.01    10.28     0.09     0.18     3.00
                           4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                           4PW         26.21    60.58   -10.28     0.09     0.18     3.00
                           4SC         26.21    60.58     3.43     0.09     0.18     3.00
                           4SW         26.21    60.58    10.28     0.09     0.18     3.00
                           5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                           5PW        691.46    80.29   -10.28     2.84     5.38    87.13
                           5SC         14.53    83.89     3.43     0.10     0.18     3.00
                           5SW        785.64    80.39    10.28     3.19     6.04    99.00
                                 ========  ========  =======  =======  =======
                                 Total      7135.00    46.81     0.00     4.48
                                 Buoyancy   7135.00    46.81    -0.00     1.59
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                  *
 *                                    ----------------                        23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                        *
*          ---------     Intact Stability Check    -- PHASE 0 ---------                              *
*                                                                                                     *
*******************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 0: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        3.12 BOWST        3.12 MIDPO        3.12 MIDST        3.12 STEPO        3.12 STEST        3.12
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 0 ---------                                 . *
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 0: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 7135.00, KG = 4.48, and Wind Speed = 10 Knots

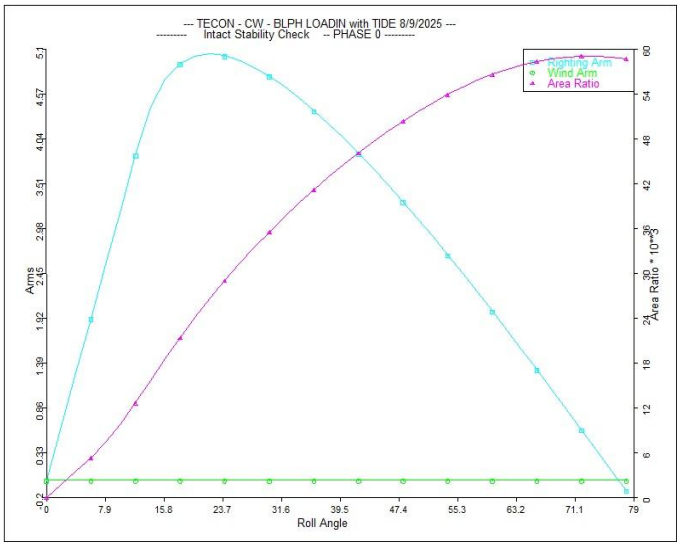
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
3.12	0.00	0.00	9999.00	3.58	0.00	0.00	0.00	0.00	0.00	-0.000
3.12	2.00	0.00	9999.00	3.12	0.63	0.63	0.00	0.00	1676.60	0.634
3.11	4.00	0.00	9999.00	2.67	1.27	2.54	0.00	0.00	3417.05	1.271
3.09	6.00	0.00	9999.00	2.21	1.91	5.72	0.00	0.00	5288.89	1.909
3.07	8.00	0.00	9999.00	1.75	2.55	10.18	0.00	0.00	7376.46	2.551
3.04	10.00	0.00	9999.00	1.30	3.20	15.93	0.00	0.00	9794.82	3.196
3.01	12.00	0.00	9999.00	0.84	3.85	22.97	0.00	0.00	9999.00	3.845
2.97	14.00	0.00	9999.00	0.38	4.41	31.22	0.00	0.00	9999.00	4.407
2.93	16.00	0.00	9999.00	-0.08	4.74	40.37	0.00	0.00	9999.00	4.740
2.89	18.00	0.00	9999.00	-0.54	4.92	50.03	0.00	0.00	9999.00	4.924
2.85	20.00	0.00	9999.00	-1.00	5.01	59.97	0.00	0.00	9999.00	5.014
2.80	22.00	0.00	9999.00	-1.46	5.04	70.02	0.00	0.00	9999.00	5.039
2.74	24.00	0.00	9999.00	-1.91	5.02	80.08	0.00	0.00	9999.00	5.018
2.69	26.00	0.00	9999.00	-2.37	4.96	90.06	0.00	0.00	9999.00	4.963
2.63	28.00	0.00	9999.00	-2.82	4.88	99.90	0.00	0.00	9999.00	4.880
2.57	30.00	0.00	9999.00	-3.27	4.78	109.56	0.00	0.00	9999.00	4.777
2.50	32.00	0.00	9999.00	-3.71	4.66	118.99	0.00	0.00	9999.00	4.655
2.43	34.00	0.00	9999.00	-4.15	4.52	128.17	0.00	0.00	9999.00	4.519
2.36	36.00	0.00	9999.00	-4.59	4.37	137.06	0.00	0.00	9999.00	4.371
2.29	38.00	0.00	9999.00	-5.01	4.21	145.64	0.00	0.00	9999.00	4.212
2.21	40.00	0.00	9999.00	-5.44	4.04	153.90	0.00	0.00	9999.00	4.043
2.13	42.00	0.00	9999.00	-5.85	3.87	161.81	0.00	0.00	9999.00	3.866
2.05	44.00	0.00	9999.00	-6.26	3.68	169.35	0.00	0.00	9999.00	3.681
1.96	46.00	0.00	9999.00	-6.66	3.49	176.52	0.00	0.00	9999.00	3.490
1.88	48.00	0.00	9999.00	-7.06	3.29	183.31	0.00	0.00	9999.00	3.291
1.79	50.00	0.00	9999.00	-7.44	3.09	189.68	0.00	0.00	9999.00	3.087
1.70	52.00	0.00	9999.00	-7.82	2.88	195.65	0.00	0.00	9999.00	2.878
1.60	54.00	0.00	9999.00	-8.18	2.66	201.19	0.00	0.00	9999.00	2.664
1.51	56.00	0.00	9999.00	-8.54	2.45	206.30	0.00	0.00	9999.00	2.446
1.41	58.00	0.00	9999.00	-8.88	2.22	210.97	0.00	0.00	9999.00	2.224
1.31	60.00	0.00	9999.00	-9.22	2.00	215.19	0.00	0.00	9999.00	1.999
1.21	62.00	0.00	9999.00	-9.54	1.77	218.96	0.00	0.00	9999.00	1.771
1.11	64.00	0.00	9999.00	-9.85	1.54	222.27	0.00	0.00	9999.00	1.540
1.00	66.00	0.00	9999.00	-10.15	1.31	225.12	0.00	0.00	9999.00	1.307
0.90	68.00	0.00	9999.00	-10.44	1.07	227.50	0.00	0.00	9999.00	1.073
0.79	70.00	0.00	9999.00	-10.72	0.84	229.41	0.00	0.00	9999.00	0.836
0.68	72.00	0.00	9999.00	-10.98	0.60	230.85	0.00	0.00	9999.00	0.599
0.58	74.00	0.00	9999.00	-11.23	0.36	231.80	0.00	0.00	9999.00	0.360
0.47	76.00	0.00	9999.00	-11.46	0.12	232.28	0.00	0.00	9999.00	0.120
0.36	78.00	0.00	9999.00	-11.68	-0.12	232.28	0.00	0.00	9999.00	-0.120

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
Intact Stability Check -- PHASE 0
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**-3
Roll Angle
0
7.9
15.8
23.7
31.6
39.5
47.4
55.3
63.2
71.1
79

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ---------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 0 ------  *
*                                                                                     *
***************************************************************************************************************
```

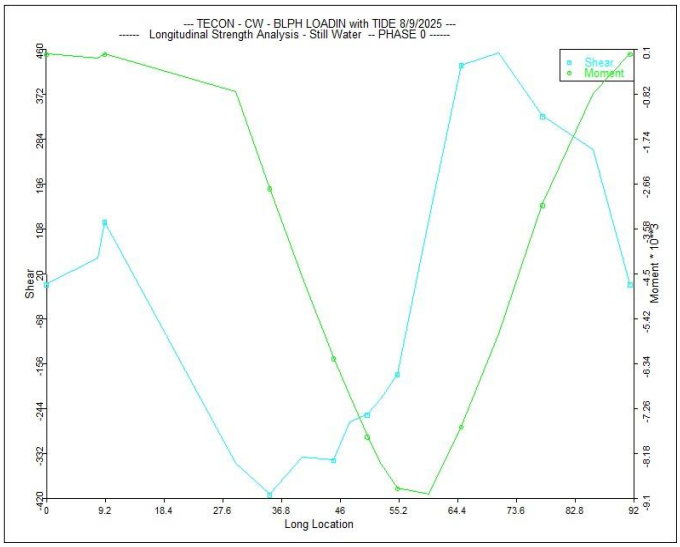
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 0: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	50	-97	-0.0039	3.7297
9.14	122	0	0.0000	4.2607
29.72	-351	-777	-0.0307	14.3672
35.00	-412	-2750	-0.1087	16.9750
40.00	-339	-4568	-0.1805	19.1364
45.00	-344	-6226	-0.2461	20.7958
47.50	-269	-7001	-0.2767	21.3794
50.29	-255	-7832	-0.3095	21.8020
52.50	-224	-8396	-0.3318	21.9471
55.00	-176	-8886	-0.3512	21.8933
60.00	126	-9011	-0.3561	21.0459
65.00	429	-7622	-0.3012	19.2189
70.87	452	-5727	-0.2263	16.0087
77.72	329	-3090	-0.1221	11.1870
85.70	262	-805	-0.0319	4.7887
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 1 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 1: Units Are Degrees, Meters, and M-Tons Unless Specified

                                Results Are Reported In Body System

                      Draft =     3.12 Roll Angle =     0.00 Pitch Angle =     0.00

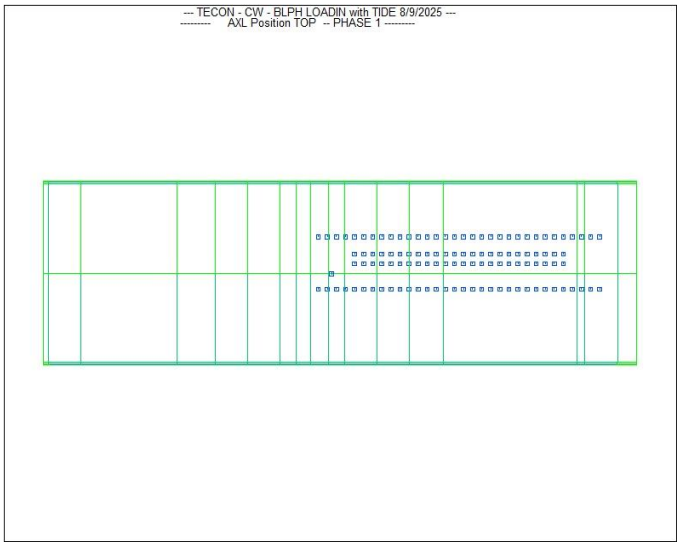
                                  Wet Radii Of Gyration About CG

                             K-X =     8.21 K-Y =    26.40 K-Z =    27.00

                                     GMT =    18.04 GML =   210.47

                             /-- Center of Gravity ---/  Sounding   % Full
                       Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL1        ------------
                             LOAD_GRO   2282.40    27.38    -1.49     7.10
                             ----------------  Part CF          ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B    ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C    ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T    ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP          ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE     ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                        --- Contents ---
                       1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                       1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                       1SC          7.05     5.60     3.43     0.11     0.18     3.00
                       1SW          7.05     5.60    10.28     0.11     0.18     3.00
                       2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                       2PW        187.04    19.43   -10.27     0.66     1.31    21.41
                       2SC         26.21    19.43     3.43     0.09     0.18     3.00
                       2SW        326.03    19.43    10.28     1.14     2.28    37.32
                       3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                       3PW         26.21    40.01   -10.28     0.09     0.18     3.00
                       3SC         26.21    40.01     3.43     0.09     0.18     3.00
                       3SW         26.21    40.01    10.28     0.09     0.18     3.00
                       4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                       4PW        109.19    60.58   -10.25     0.39     0.77    12.50
                       4SC         26.21    60.58     3.43     0.09     0.18     3.00
                       4SW        248.27    60.58    10.27     0.87     1.74    28.42
                       5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                       5PW        691.46    80.29   -10.28     2.84     5.38    87.13
                       5SC         14.53    83.89     3.43     0.10     0.18     3.00
                       5SW        785.64    80.39    10.28     3.19     6.04    99.00
                             ========  ========  =======  =======  =======
                             Total      7135.00    46.81     0.00     4.40
                             Buoyancy   7135.00    46.81    -0.00     1.59
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                     ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 1 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 1: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        3.12 BOWST        3.12 MIDPO        3.12 MIDST        3.12 STEPO        3.12 STEST        3.12
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 1 ---------                                 . *
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 1: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 7135.00, KG = 4.40, and Wind Speed = 10 Knots

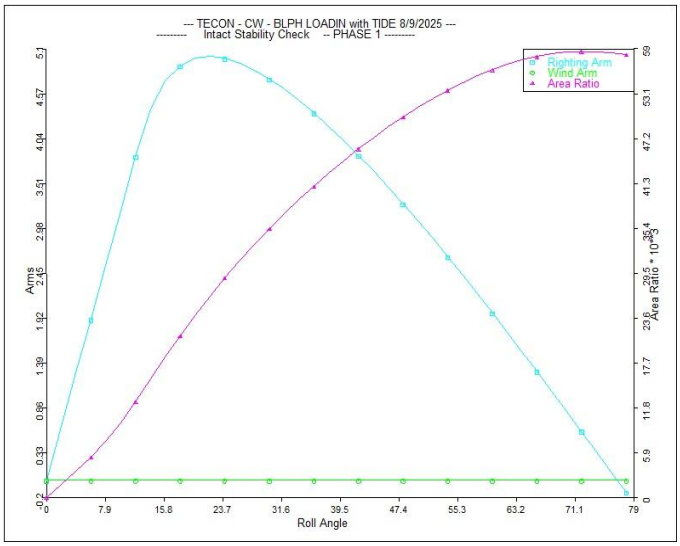
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
3.12	0.00	0.00	9999.00	3.58	0.00	0.00	0.00	0.00	0.00	-0.000
3.12	2.00	0.00	9999.00	3.12	0.63	0.63	0.00	0.00	1669.40	0.631
3.11	4.00	0.00	9999.00	2.67	1.27	2.53	0.00	0.00	3402.22	1.265
3.09	6.00	0.00	9999.00	2.21	1.90	5.69	0.00	0.00	5265.80	1.901
3.07	8.00	0.00	9999.00	1.75	2.54	10.14	0.00	0.00	7344.07	2.539
3.04	10.00	0.00	9999.00	1.30	3.18	15.86	0.00	0.00	9751.59	3.182
3.01	12.00	0.00	9999.00	0.84	3.83	22.87	0.00	0.00	9999.00	3.828
2.97	14.00	0.00	9999.00	0.38	4.39	31.08	0.00	0.00	9999.00	4.387
2.93	16.00	0.00	9999.00	-0.08	4.72	40.19	0.00	0.00	9999.00	4.717
2.89	18.00	0.00	9999.00	-0.54	4.90	49.80	0.00	0.00	9999.00	4.899
2.85	20.00	0.00	9999.00	-1.00	4.99	59.69	0.00	0.00	9999.00	4.986
2.80	22.00	0.00	9999.00	-1.46	5.01	69.68	0.00	0.00	9999.00	5.010
2.74	24.00	0.00	9999.00	-1.91	4.99	79.68	0.00	0.00	9999.00	4.988
2.69	26.00	0.00	9999.00	-2.37	4.93	89.60	0.00	0.00	9999.00	4.931
2.63	28.00	0.00	9999.00	-2.82	4.85	99.38	0.00	0.00	9999.00	4.849
2.57	30.00	0.00	9999.00	-3.27	4.75	108.97	0.00	0.00	9999.00	4.745
2.50	32.00	0.00	9999.00	-3.71	4.62	118.34	0.00	0.00	9999.00	4.624
2.43	34.00	0.00	9999.00	-4.15	4.49	127.46	0.00	0.00	9999.00	4.489
2.36	36.00	0.00	9999.00	-4.59	4.34	136.29	0.00	0.00	9999.00	4.342
2.29	38.00	0.00	9999.00	-5.01	4.18	144.81	0.00	0.00	9999.00	4.183
2.21	40.00	0.00	9999.00	-5.44	4.02	153.01	0.00	0.00	9999.00	4.016
2.13	42.00	0.00	9999.00	-5.85	3.84	160.87	0.00	0.00	9999.00	3.840
2.05	44.00	0.00	9999.00	-6.26	3.66	168.36	0.00	0.00	9999.00	3.656
1.96	46.00	0.00	9999.00	-6.66	3.47	175.48	0.00	0.00	9999.00	3.465
1.88	48.00	0.00	9999.00	-7.06	3.27	182.22	0.00	0.00	9999.00	3.268
1.79	50.00	0.00	9999.00	-7.44	3.06	188.55	0.00	0.00	9999.00	3.065
1.70	52.00	0.00	9999.00	-7.82	2.86	194.47	0.00	0.00	9999.00	2.856
1.60	54.00	0.00	9999.00	-8.18	2.64	199.97	0.00	0.00	9999.00	2.643
1.51	56.00	0.00	9999.00	-8.54	2.43	205.04	0.00	0.00	9999.00	2.426
1.41	58.00	0.00	9999.00	-8.88	2.20	209.67	0.00	0.00	9999.00	2.204
1.31	60.00	0.00	9999.00	-9.22	1.98	213.85	0.00	0.00	9999.00	1.980
1.21	62.00	0.00	9999.00	-9.54	1.75	217.59	0.00	0.00	9999.00	1.752
1.11	64.00	0.00	9999.00	-9.85	1.52	220.86	0.00	0.00	9999.00	1.521
1.00	66.00	0.00	9999.00	-10.15	1.29	223.67	0.00	0.00	9999.00	1.288
0.90	68.00	0.00	9999.00	-10.44	1.05	226.01	0.00	0.00	9999.00	1.053
0.79	70.00	0.00	9999.00	-10.72	0.82	227.88	0.00	0.00	9999.00	0.817
0.68	72.00	0.00	9999.00	-10.98	0.58	229.28	0.00	0.00	9999.00	0.579
0.58	74.00	0.00	9999.00	-11.23	0.34	230.19	0.00	0.00	9999.00	0.339
0.47	76.00	0.00	9999.00	-11.46	0.10	230.63	0.00	0.00	9999.00	0.099
0.36	78.00	0.00	9999.00	-11.68	-0.14	230.59	0.00	0.00	9999.00	-0.141

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
Intact Stability Check -- PHASE 1
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
7.9
15.8
23.7
31.6
39.5
47.4
55.3
63.2
71.1
79

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 1 ------  *
*                                                                                     *
***************************************************************************************************************

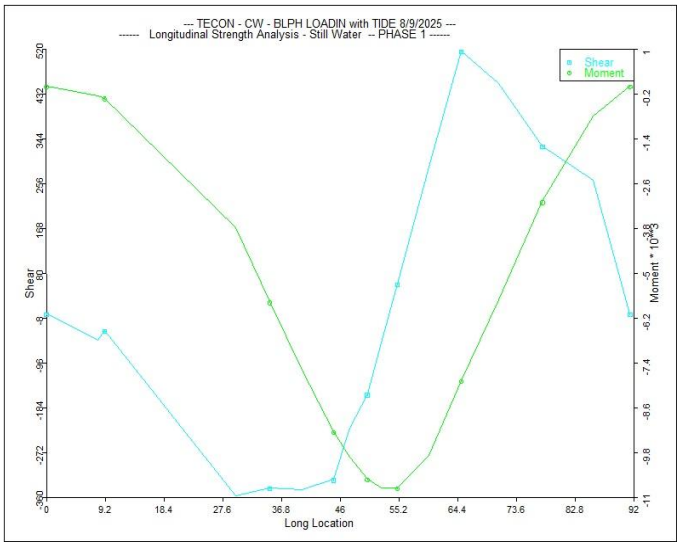
                    +++ L O N G I T U D I N A L   S T R E N G T H   R E S U L T S +++
                    ================================================================

                Process is 1: Units Are Degrees, Meters, and M-Tons Unless Specified

                                    Allowable Stress =     155.00 Mpa

                                Allowable Deflection =       1.00 MM
```

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-52	-263	-0.0104	6.3594
9.14	-32	-318	-0.0126	7.2651
29.72	-357	-3787	-0.1497	22.6753
35.00	-340	-5768	-0.2279	25.8624
40.00	-345	-7588	-0.2999	28.2303
45.00	-324	-9243	-0.3653	29.7634
47.50	-224	-9930	-0.3924	30.1592
50.29	-157	-10518	-0.4157	30.2774
52.50	-55	-10755	-0.4250	30.1163
55.00	58	-10752	-0.4249	29.6551
60.00	288	-9887	-0.3907	27.8538
65.00	516	-7878	-0.3113	24.9730
70.87	452	-5727	-0.2263	20.4887
77.72	329	-3090	-0.1222	14.1737
85.70	262	-805	-0.0319	6.0386
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 2 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                   Process is 2: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                       Draft =     3.07 Roll Angle =     0.00 Pitch Angle =     0.00

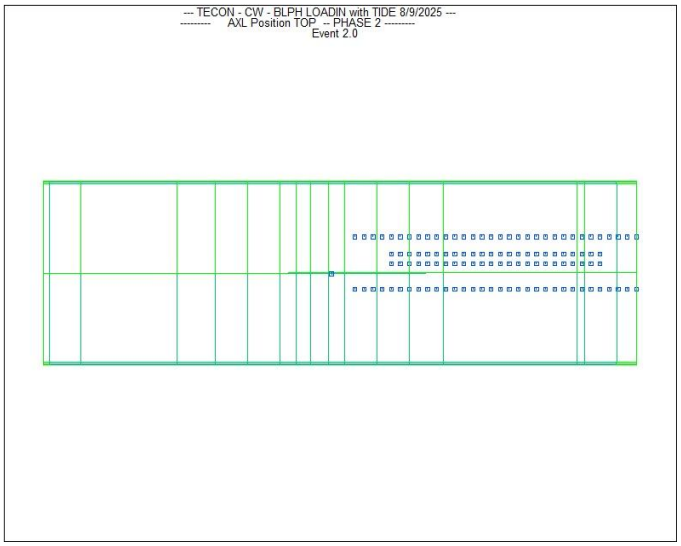
                                    Wet Radii Of Gyration About CG

                              K-X =     8.16 K-Y =    27.56 K-Z =    28.11

                                      GMT =    18.35 GML =   213.55

                              /-- Center of Gravity ---/  Sounding   % Full
                        Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                              ----------------  Part AXL2        ------------
                              LOAD_GRO   2282.40    21.72    -1.49     7.10
                              ----------------  Part CF          ------------
                              LOAD_GRO     30.00    69.38    11.22     8.10
                              ----------------  Part GRI&SF-B    ------------
                              LOAD_GRO     75.00    30.86    -1.14     7.35
                              ----------------  Part GRI&SF-C    ------------
                              LOAD_GRO      0.50    67.44    11.22     7.10
                              ----------------  Part GRI&SF-T    ------------
                              LOAD_GRO     45.00    65.20    -2.92     7.40
                              ----------------  Part TP          ------------
                              LOAD_GRO    254.50    65.54    -2.14     9.35
                              ----------------  Part VERVECE     ------------
                              LOAD_GRO   1832.80    47.02     0.00     3.52
                                          --- Contents ---
                        1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                        1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                        1SC          7.05     5.60     3.43     0.11     0.18     3.00
                        1SW          7.05     5.60    10.28     0.11     0.18     3.00
                        2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                        2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                        2SC         26.21    19.43     3.43     0.09     0.18     3.00
                        2SW        132.23    19.43    10.26     0.47     0.93    15.14
                        3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                        3PW         26.21    40.01   -10.28     0.09     0.18     3.00
                        3SC         26.21    40.01     3.43     0.09     0.18     3.00
                        3SW         26.21    40.01    10.28     0.09     0.18     3.00
                        4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                        4PW        209.39    60.58   -10.27     0.74     1.47    23.97
                        4SC         26.21    60.58     3.43     0.09     0.18     3.00
                        4SW        381.38    60.58    10.28     1.34     2.67    43.65
                        5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                        5PW        691.46    80.29   -10.28     2.84     5.38    87.13
                        5SC         14.53    83.89     3.43     0.10     0.18     3.00
                        5SW        785.64    80.39    10.28     3.19     6.04    99.00
                              ========  ========  =======  =======  =======
                              Total      7013.67    46.82    -0.00     4.48
                              Buoyancy   7013.66    46.82    -0.00     1.57
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 2 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 2: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        3.07 BOWST        3.07 MIDPO        3.07 MIDST        3.07 STEPO        3.07 STEST        3.07
```

```
                    ******************************************************
*                                        ***  MOSES   ***                                                  *
 *                                        ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                             *
*          ---------     Intact Stability Check    -- PHASE 2 ---------                                  . *
*                                                                                                         *
***********************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 2: Units Are Degrees, Meters, and M-Tons Unless Specified

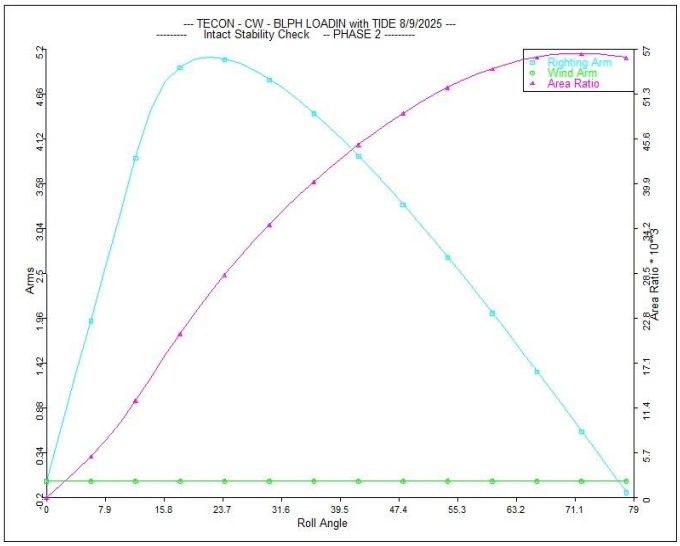
Moment Scaled By 7013.66, KG = 4.48, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
3.07	0.00	0.00	9999.00	3.63	-0.00	0.00	0.00	0.00	0.00	-0.000
3.07	2.00	0.00	9999.00	3.17	0.64	0.64	0.00	0.00	1640.20	0.642
3.06	4.00	0.00	9999.00	2.72	1.29	2.57	0.00	0.00	3342.68	1.287
3.04	6.00	0.00	9999.00	2.26	1.93	5.79	0.00	0.00	5172.79	1.933
3.02	8.00	0.00	9999.00	1.80	2.58	10.31	0.00	0.00	7211.84	2.583
2.99	10.00	0.00	9999.00	1.34	3.24	16.13	0.00	0.00	9570.82	3.237
2.96	12.00	0.00	9999.00	0.89	3.89	23.26	0.00	0.00	9999.00	3.893
2.92	14.00	0.00	9999.00	0.44	4.46	31.61	0.00	0.00	9999.00	4.464
2.87	16.00	0.00	9999.00	-0.02	4.80	40.88	0.00	0.00	9999.00	4.800
2.82	18.00	0.00	9999.00	-0.47	4.99	50.66	0.00	0.00	9999.00	4.986
2.77	20.00	0.00	9999.00	-0.92	5.08	60.73	0.00	0.00	9999.00	5.076
2.71	22.00	0.00	9999.00	-1.37	5.10	70.90	0.00	0.00	9999.00	5.101
2.65	24.00	0.00	9999.00	-1.82	5.08	81.08	0.00	0.00	9999.00	5.079
2.59	26.00	0.00	9999.00	-2.27	5.02	91.19	0.00	0.00	9999.00	5.023
2.52	28.00	0.00	9999.00	-2.71	4.94	101.15	0.00	0.00	9999.00	4.940
2.45	30.00	0.00	9999.00	-3.15	4.84	110.92	0.00	0.00	9999.00	4.835
2.38	32.00	0.00	9999.00	-3.59	4.71	120.47	0.00	0.00	9999.00	4.713
2.31	34.00	0.00	9999.00	-4.02	4.58	129.76	0.00	0.00	9999.00	4.576
2.23	36.00	0.00	9999.00	-4.45	4.43	138.76	0.00	0.00	9999.00	4.426
2.15	38.00	0.00	9999.00	-4.87	4.27	147.46	0.00	0.00	9999.00	4.265
2.06	40.00	0.00	9999.00	-5.29	4.09	155.82	0.00	0.00	9999.00	4.094
1.98	42.00	0.00	9999.00	-5.70	3.91	163.82	0.00	0.00	9999.00	3.914
1.89	44.00	0.00	9999.00	-6.10	3.73	171.47	0.00	0.00	9999.00	3.727
1.80	46.00	0.00	9999.00	-6.50	3.53	178.72	0.00	0.00	9999.00	3.532
1.71	48.00	0.00	9999.00	-6.89	3.33	185.59	0.00	0.00	9999.00	3.331
1.61	50.00	0.00	9999.00	-7.27	3.12	192.04	0.00	0.00	9999.00	3.124
1.52	52.00	0.00	9999.00	-7.64	2.91	198.08	0.00	0.00	9999.00	2.913
1.42	54.00	0.00	9999.00	-8.00	2.70	203.69	0.00	0.00	9999.00	2.696
1.32	56.00	0.00	9999.00	-8.35	2.48	208.86	0.00	0.00	9999.00	2.476
1.22	58.00	0.00	9999.00	-8.69	2.25	213.59	0.00	0.00	9999.00	2.251
1.11	60.00	0.00	9999.00	-9.02	2.02	217.86	0.00	0.00	9999.00	2.023
1.01	62.00	0.00	9999.00	-9.34	1.79	221.68	0.00	0.00	9999.00	1.791
0.90	64.00	0.00	9999.00	-9.65	1.56	225.02	0.00	0.00	9999.00	1.557
0.79	66.00	0.00	9999.00	-9.95	1.32	227.90	0.00	0.00	9999.00	1.320
0.69	68.00	0.00	9999.00	-10.23	1.08	230.30	0.00	0.00	9999.00	1.082
0.58	70.00	0.00	9999.00	-10.50	0.84	232.23	0.00	0.00	9999.00	0.841
0.47	72.00	0.00	9999.00	-10.76	0.60	233.67	0.00	0.00	9999.00	0.598
0.36	74.00	0.00	9999.00	-11.01	0.35	234.62	0.00	0.00	9999.00	0.355
0.25	76.00	0.00	9999.00	-11.24	0.11	235.08	0.00	0.00	9999.00	0.111
0.14	78.00	0.00	9999.00	-11.46	-0.13	235.06	0.00	0.00	9999.00	-0.134


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 2 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
7.9
15.8
23.7
31.6
39.5
47.4
55.3
63.2
71.1
79

```
*******************************************************
*                                  ***  MOSES   ***                                                                 *
 *                                  ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                                      *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 2 ------                                *
*                                                                                                                  *
********************************************************************************************************************

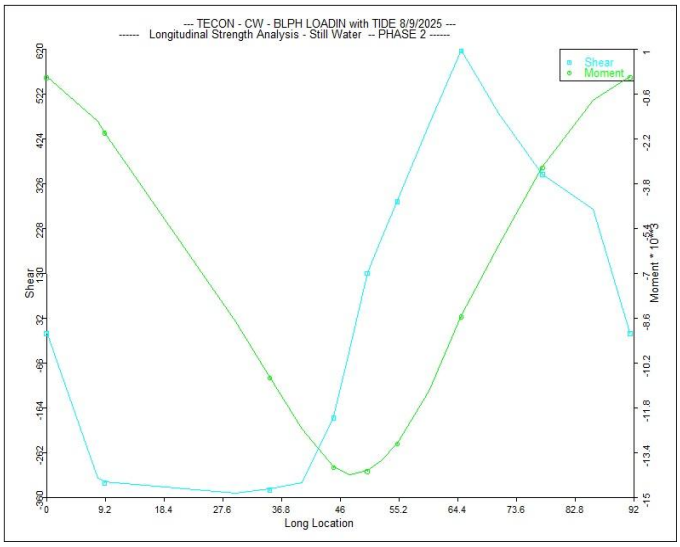
                    +++ L O N G I T U D I N A L   S T R E N G T H   R E S U L T S +++
                    ================================================================

                Process is 2: Units Are Degrees, Meters, and M-Tons Unless Specified

                                    Allowable Stress =     155.00 Mpa

                                  Allowable Deflection =       1.00 MM
```

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-318	-1600	-0.0633	11.0223
9.14	-326	-1982	-0.0784	12.5760
29.72	-351	-8731	-0.3450	36.4759
35.00	-342	-10712	-0.4233	40.4838
40.00	-327	-12554	-0.4961	43.0679
45.00	-184	-13911	-0.5498	44.2730
47.50	-34	-14186	-0.5606	44.3096
50.29	131	-14053	-0.5553	43.8896
52.50	205	-13682	-0.5407	43.2155
55.00	288	-13067	-0.5164	42.0980
60.00	453	-11214	-0.4432	38.8069
65.00	618	-8536	-0.3373	34.2871
70.87	480	-6006	-0.2374	27.7872
77.72	347	-3214	-0.1270	19.0598
85.70	269	-831	-0.0329	8.0870
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 3 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                   Process is 3: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                       Draft =     3.03 Roll Angle =     0.00 Pitch Angle =    -0.00

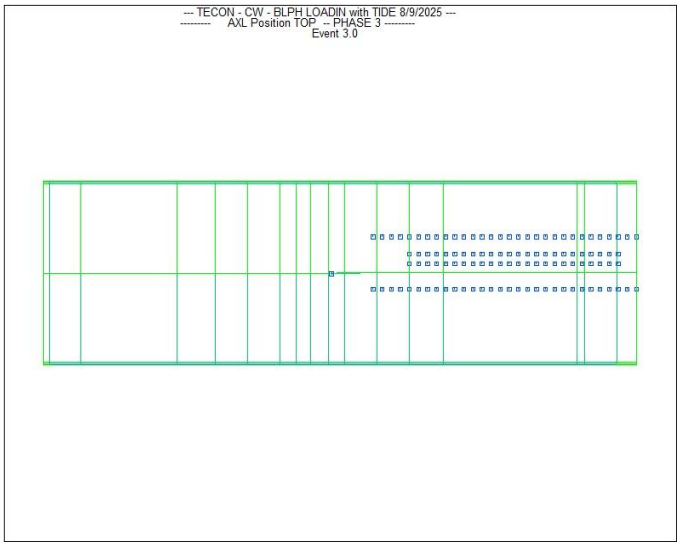
                                    Wet Radii Of Gyration About CG

                              K-X =     8.19 K-Y =    27.95 K-Z =    28.50

                                      GMT =    18.64 GML =   215.76

                              /-- Center of Gravity ---/  Sounding   % Full
                        Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                              ----------------  Part AXL3       ------------
                              LOAD_GRO   2179.80    19.91    -1.51     7.10
                              ----------------  Part CF         ------------
                              LOAD_GRO     30.00    69.38    11.22     8.10
                              ----------------  Part GRI&SF-B   ------------
                              LOAD_GRO     75.00    30.86    -1.14     7.35
                              ----------------  Part GRI&SF-C   ------------
                              LOAD_GRO      0.50    67.44    11.22     7.10
                              ----------------  Part GRI&SF-T   ------------
                              LOAD_GRO     45.00    65.20    -2.92     7.40
                              ----------------  Part TP         ------------
                              LOAD_GRO    254.50    65.54    -2.14     9.35
                              ----------------  Part VERVECE    ------------
                              LOAD_GRO   1832.80    47.02     0.00     3.52
                                         --- Contents ---
                        1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                        1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                        1SC          7.05     5.60     3.43     0.11     0.18     3.00
                        1SW          7.05     5.60    10.28     0.11     0.18     3.00
                        2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                        2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                        2SC         26.21    19.43     3.43     0.09     0.18     3.00
                        2SW         98.23    19.43    10.25     0.35     0.69    11.24
                        3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                        3PW         26.21    40.01   -10.28     0.09     0.18     3.00
                        3SC         26.21    40.01     3.43     0.09     0.18     3.00
                        3SW         26.21    40.01    10.28     0.09     0.18     3.00
                        4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                        4PW        214.40    60.58   -10.27     0.75     1.50    24.54
                        4SC         26.21    60.58     3.43     0.09     0.18     3.00
                        4SW        408.79    60.58    10.28     1.43     2.86    46.79
                        5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                        5PW        691.46    80.29   -10.28     2.84     5.38    87.13
                        5SC         14.53    83.89     3.43     0.10     0.18     3.00
                        5SW        785.64    80.39    10.28     3.19     6.04    99.00
                              ========  ========  =======  =======  =======
                              Total      6909.50    46.82    -0.00     4.45
                              Buoyancy   6909.49    46.82    -0.00     1.54
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 3 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 3: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        3.03 BOWST        3.03 MIDPO        3.03 MIDST        3.03 STEPO        3.03 STEST        3.03
```

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*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 3 ---------                                . *
*                                                                                                       *
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 3: Units Are Degrees, Meters, and M-Tons Unless Specified

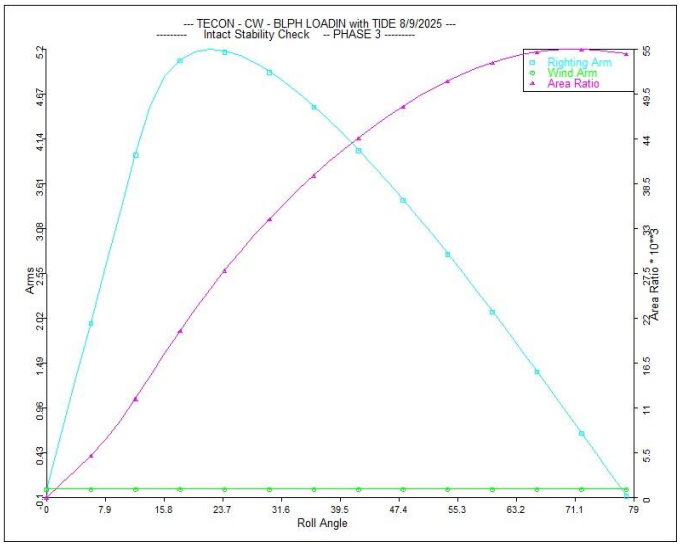
Moment Scaled By 6909.50, KG = 4.45, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = -0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
3.03	0.00	0.00	9999.00	3.67	0.00	0.00	0.00	0.00	0.00	-0.000
3.02	2.00	0.00	9999.00	3.21	0.65	0.65	0.00	0.00	1618.16	0.652
3.01	4.00	0.00	9999.00	2.76	1.31	2.61	0.00	0.00	3297.43	1.307
3.00	6.00	0.00	9999.00	2.30	1.96	5.88	0.00	0.00	5101.81	1.964
2.98	8.00	0.00	9999.00	1.84	2.62	10.47	0.00	0.00	7110.53	2.625
2.95	10.00	0.00	9999.00	1.39	3.29	16.39	0.00	0.00	9431.81	3.290
2.92	12.00	0.00	9999.00	0.93	3.96	23.63	0.00	0.00	9999.00	3.956
2.87	14.00	0.00	9999.00	0.48	4.53	32.13	0.00	0.00	9999.00	4.535
2.82	16.00	0.00	9999.00	0.04	4.88	41.54	0.00	0.00	9999.00	4.879
2.76	18.00	0.00	9999.00	-0.41	5.07	51.49	0.00	0.00	9999.00	5.071
2.70	20.00	0.00	9999.00	-0.85	5.16	61.73	0.00	0.00	9999.00	5.165
2.64	22.00	0.00	9999.00	-1.30	5.19	72.08	0.00	0.00	9999.00	5.192
2.57	24.00	0.00	9999.00	-1.74	5.17	82.45	0.00	0.00	9999.00	5.173
2.50	26.00	0.00	9999.00	-2.18	5.12	92.74	0.00	0.00	9999.00	5.118
2.43	28.00	0.00	9999.00	-2.62	5.04	102.89	0.00	0.00	9999.00	5.036
2.36	30.00	0.00	9999.00	-3.06	4.93	112.86	0.00	0.00	9999.00	4.932
2.28	32.00	0.00	9999.00	-3.49	4.81	122.60	0.00	0.00	9999.00	4.810
2.20	34.00	0.00	9999.00	-3.91	4.67	132.08	0.00	0.00	9999.00	4.673
2.11	36.00	0.00	9999.00	-4.34	4.52	141.28	0.00	0.00	9999.00	4.522
2.03	38.00	0.00	9999.00	-4.75	4.36	150.16	0.00	0.00	9999.00	4.360
1.94	40.00	0.00	9999.00	-5.17	4.19	158.71	0.00	0.00	9999.00	4.188
1.85	42.00	0.00	9999.00	-5.57	4.01	166.90	0.00	0.00	9999.00	4.007
1.75	44.00	0.00	9999.00	-5.97	3.82	174.73	0.00	0.00	9999.00	3.818
1.66	46.00	0.00	9999.00	-6.36	3.62	182.17	0.00	0.00	9999.00	3.621
1.56	48.00	0.00	9999.00	-6.74	3.42	189.21	0.00	0.00	9999.00	3.419
1.46	50.00	0.00	9999.00	-7.12	3.21	195.84	0.00	0.00	9999.00	3.211
1.36	52.00	0.00	9999.00	-7.48	3.00	202.05	0.00	0.00	9999.00	2.998
1.26	54.00	0.00	9999.00	-7.84	2.78	207.83	0.00	0.00	9999.00	2.780
1.15	56.00	0.00	9999.00	-8.19	2.56	213.16	0.00	0.00	9999.00	2.557
1.05	58.00	0.00	9999.00	-8.53	2.33	218.05	0.00	0.00	9999.00	2.331
0.94	60.00	0.00	9999.00	-8.85	2.10	222.48	0.00	0.00	9999.00	2.101
0.83	62.00	0.00	9999.00	-9.17	1.87	226.45	0.00	0.00	9999.00	1.867
0.73	64.00	0.00	9999.00	-9.47	1.63	229.95	0.00	0.00	9999.00	1.631
0.62	66.00	0.00	9999.00	-9.77	1.39	232.97	0.00	0.00	9999.00	1.392
0.50	68.00	0.00	9999.00	-10.05	1.15	235.51	0.00	0.00	9999.00	1.151
0.39	70.00	0.00	9999.00	-10.32	0.91	237.57	0.00	0.00	9999.00	0.908
0.28	72.00	0.00	9999.00	-10.58	0.66	239.14	0.00	0.00	9999.00	0.663
0.17	74.00	0.00	9999.00	-10.82	0.42	240.22	0.00	0.00	9999.00	0.417
0.06	76.00	0.00	9999.00	-11.05	0.17	240.81	0.00	0.00	9999.00	0.170
-0.05	78.00	0.00	9999.00	-11.27	-0.08	240.90	0.00	0.00	9999.00	-0.078


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 3 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
7.9
15.8
23.7
31.6
39.5
47.4
55.3
63.2
71.1
79

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 3 ------  *
*                                                                                     *
***************************************************************************************************************
```

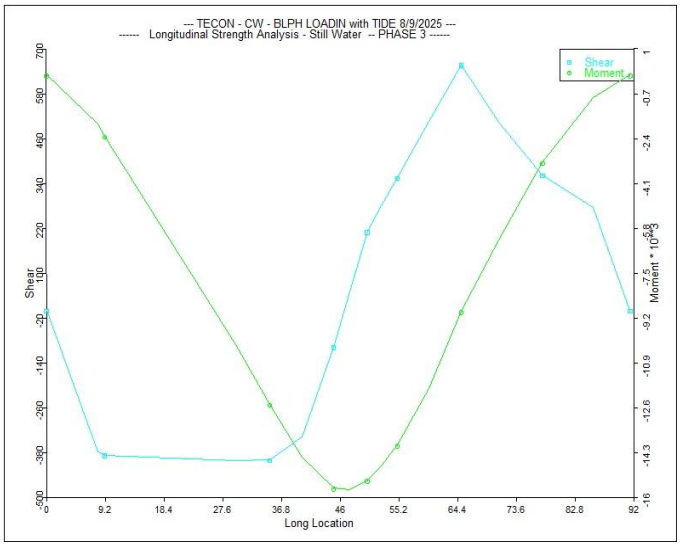
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 3: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-377	-1865	-0.0737	12.4533
9.14	-386	-2315	-0.0915	14.2083
29.72	-402	-10209	-0.4034	41.0297
35.00	-399	-12476	-0.4930	45.4246
40.00	-338	-14468	-0.5718	48.1763
45.00	-97	-15659	-0.6188	49.3397
47.50	48	-15721	-0.6212	49.2810
50.29	211	-15358	-0.6069	48.7049
52.50	279	-14817	-0.5855	47.8751
55.00	355	-14024	-0.5542	46.5521
60.00	507	-11870	-0.4691	42.7749
65.00	657	-8959	-0.3541	37.6963
70.87	503	-6244	-0.2468	30.4818
77.72	362	-3319	-0.1312	20.8737
85.70	274	-852	-0.0337	8.8490
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 4 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                   Process is 4: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                       Draft =     2.98 Roll Angle =     0.00 Pitch Angle =    -0.00

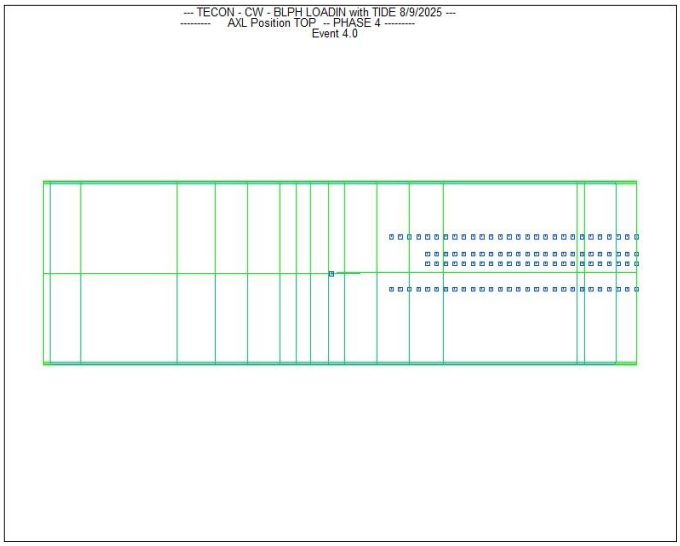
                                   Wet Radii Of Gyration About CG

                              K-X =     8.22 K-Y =    28.39 K-Z =    28.94

                                      GMT =    18.98 GML =   218.34

                              /-- Center of Gravity ---/  Sounding   % Full
                        Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                              ----------------  Part AXL4        ------------
                              LOAD_GRO   2076.00    18.07    -1.52     7.10
                              ----------------  Part CF          ------------
                              LOAD_GRO     30.00    69.38    11.22     8.10
                              ----------------  Part GRI&SF-B    ------------
                              LOAD_GRO     75.00    30.86    -1.14     7.35
                              ----------------  Part GRI&SF-C    ------------
                              LOAD_GRO      0.50    67.44    11.22     7.10
                              ----------------  Part GRI&SF-T    ------------
                              LOAD_GRO     45.00    65.20    -2.92     7.40
                              ----------------  Part TP          ------------
                              LOAD_GRO    254.50    65.54    -2.14     9.35
                              ----------------  Part VERVECE     ------------
                              LOAD_GRO   1832.80    47.02     0.00     3.52
                                         --- Contents ---
                        1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                        1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                        1SC          7.05     5.60     3.43     0.11     0.18     3.00
                        1SW          7.05     5.60    10.28     0.11     0.18     3.00
                        2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                        2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                        2SC         26.21    19.43     3.43     0.09     0.18     3.00
                        2SW         68.26    19.43    10.23     0.24     0.48     7.81
                        3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                        3PW         26.21    40.01   -10.28     0.09     0.18     3.00
                        3SC         26.21    40.01     3.43     0.09     0.18     3.00
                        3SW         26.21    40.01    10.28     0.09     0.18     3.00
                        4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                        4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                        4SC         26.21    60.58     3.43     0.09     0.18     3.00
                        4SW        425.13    60.58    10.28     1.49     2.97    48.66
                        5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                        5PW        691.46    80.29   -10.28     2.84     5.38    87.13
                        5SC         14.53    83.89     3.43     0.10     0.18     3.00
                        5SW        785.64    80.39    10.28     3.19     6.04    99.00
                              ========  ========  =======  =======  =======
                              Total      6791.00    46.82    -0.00     4.42
                              Buoyancy   6790.99    46.82    -0.00     1.52
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                  *
 *                                    ----------------                        23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                        *
*          ---------     Intact Stability Check    -- PHASE 4 ---------                              *
*                                                                                                     *
*******************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 4: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.98 BOWST        2.98 MIDPO        2.98 MIDST        2.98 STEPO        2.98 STEST        2.98
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 4 ---------                                . *
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 4: Units Are Degrees, Meters, and M-Tons Unless Specified

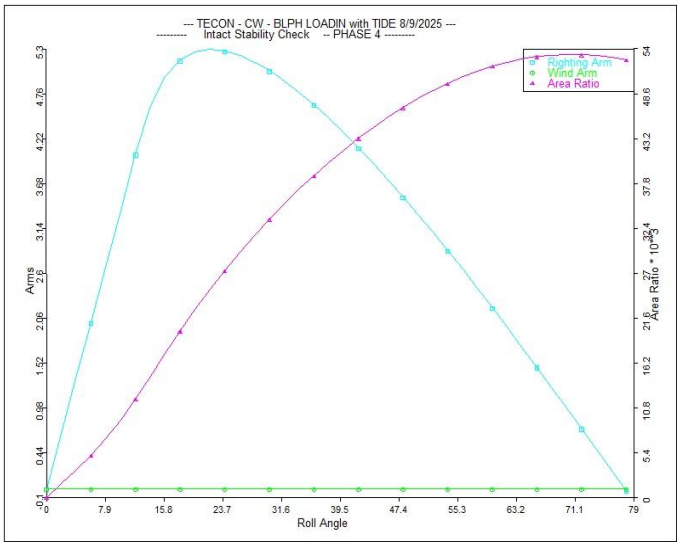
Moment Scaled By 6791.00, KG = 4.42, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = -0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.98	0.00	0.00	9999.00	3.72	0.00	0.00	0.00	0.00	0.00	-0.000
2.97	2.00	0.00	9999.00	3.26	0.66	0.66	0.00	0.00	1593.17	0.664
2.97	4.00	0.00	9999.00	2.81	1.33	2.66	0.00	0.00	3246.25	1.331
2.95	6.00	0.00	9999.00	2.35	2.00	5.99	0.00	0.00	5021.77	2.000
2.93	8.00	0.00	9999.00	1.89	2.67	10.67	0.00	0.00	6996.75	2.673
2.90	10.00	0.00	9999.00	1.44	3.35	16.69	0.00	0.00	9276.52	3.351
2.87	12.00	0.00	9999.00	0.98	4.03	24.07	0.00	0.00	9999.00	4.029
2.81	14.00	0.00	9999.00	0.54	4.61	32.71	0.00	0.00	9999.00	4.615
2.75	16.00	0.00	9999.00	0.10	4.97	42.30	0.00	0.00	9999.00	4.968
2.69	18.00	0.00	9999.00	-0.34	5.17	52.43	0.00	0.00	9999.00	5.165
2.62	20.00	0.00	9999.00	-0.78	5.26	62.86	0.00	0.00	9999.00	5.263
2.55	22.00	0.00	9999.00	-1.22	5.29	73.41	0.00	0.00	9999.00	5.293
2.48	24.00	0.00	9999.00	-1.65	5.28	83.98	0.00	0.00	9999.00	5.276
2.40	26.00	0.00	9999.00	-2.09	5.22	94.48	0.00	0.00	9999.00	5.222
2.33	28.00	0.00	9999.00	-2.52	5.14	104.84	0.00	0.00	9999.00	5.141
2.24	30.00	0.00	9999.00	-2.94	5.04	115.02	0.00	0.00	9999.00	5.037
2.16	32.00	0.00	9999.00	-3.37	4.92	124.97	0.00	0.00	9999.00	4.915
2.07	34.00	0.00	9999.00	-3.79	4.78	134.67	0.00	0.00	9999.00	4.778
1.98	36.00	0.00	9999.00	-4.21	4.63	144.07	0.00	0.00	9999.00	4.627
1.89	38.00	0.00	9999.00	-4.62	4.46	153.16	0.00	0.00	9999.00	4.464
1.80	40.00	0.00	9999.00	-5.02	4.29	161.92	0.00	0.00	9999.00	4.290
1.70	42.00	0.00	9999.00	-5.42	4.11	170.31	0.00	0.00	9999.00	4.108
1.60	44.00	0.00	9999.00	-5.81	3.92	178.34	0.00	0.00	9999.00	3.917
1.50	46.00	0.00	9999.00	-6.20	3.72	185.97	0.00	0.00	9999.00	3.719
1.40	48.00	0.00	9999.00	-6.58	3.51	193.21	0.00	0.00	9999.00	3.515
1.29	50.00	0.00	9999.00	-6.95	3.30	200.03	0.00	0.00	9999.00	3.305
1.19	52.00	0.00	9999.00	-7.31	3.09	206.42	0.00	0.00	9999.00	3.089
1.08	54.00	0.00	9999.00	-7.66	2.87	212.38	0.00	0.00	9999.00	2.869
0.97	56.00	0.00	9999.00	-8.00	2.64	217.89	0.00	0.00	9999.00	2.644
0.86	58.00	0.00	9999.00	-8.34	2.42	222.95	0.00	0.00	9999.00	2.416
0.75	60.00	0.00	9999.00	-8.66	2.18	227.55	0.00	0.00	9999.00	2.183
0.64	62.00	0.00	9999.00	-8.97	1.95	231.68	0.00	0.00	9999.00	1.947
0.53	64.00	0.00	9999.00	-9.27	1.71	235.34	0.00	0.00	9999.00	1.707
0.41	66.00	0.00	9999.00	-9.56	1.47	238.51	0.00	0.00	9999.00	1.466
0.30	68.00	0.00	9999.00	-9.84	1.22	241.20	0.00	0.00	9999.00	1.222
0.18	70.00	0.00	9999.00	-10.11	0.98	243.39	0.00	0.00	9999.00	0.976
0.07	72.00	0.00	9999.00	-10.36	0.73	245.10	0.00	0.00	9999.00	0.729
-0.04	74.00	0.00	9999.00	-10.61	0.48	246.31	0.00	0.00	9999.00	0.480
-0.16	76.00	0.00	9999.00	-10.84	0.23	247.02	0.00	0.00	9999.00	0.230
-0.27	78.00	0.00	9999.00	-11.05	-0.02	247.23	0.00	0.00	9999.00	-0.021


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 4 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
7.9
15.8
23.7
31.6
39.5
47.4
55.3
63.2
71.1
79

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 4 ------  *
*                                                                                     *
***************************************************************************************************************
```

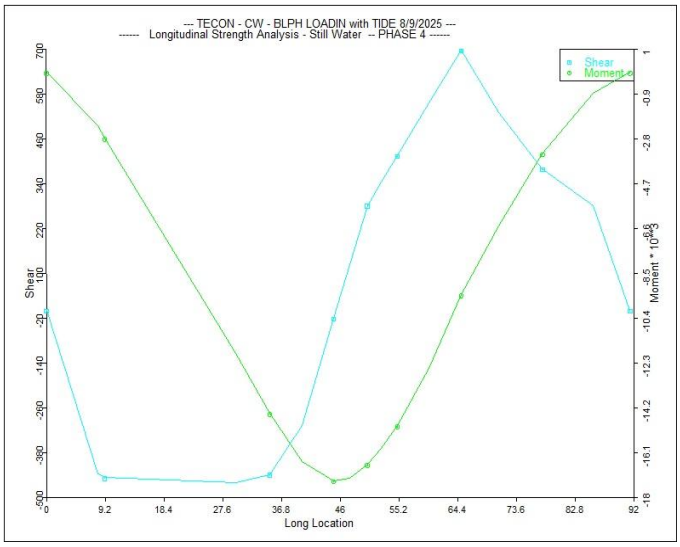
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 4: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-436	-2268	-0.0896	14.0323
9.14	-446	-2786	-0.1101	16.0068
29.72	-460	-11895	-0.4701	45.9314
35.00	-438	-14451	-0.5711	50.7051
40.00	-306	-16487	-0.6515	53.5949
45.00	-20	-17307	-0.6839	54.6796
47.50	122	-17181	-0.6790	54.5109
50.29	281	-16618	-0.6567	53.7643
52.50	344	-15928	-0.6294	52.7688
55.00	415	-14979	-0.5920	51.2294
60.00	556	-12552	-0.4960	46.9444
65.00	696	-9420	-0.3723	41.2821
70.87	530	-6512	-0.2574	33.3192
77.72	380	-3438	-0.1359	22.7849
85.70	281	-875	-0.0346	9.6522
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 5 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                   Process is 5: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                       Draft =     2.92 Roll Angle =     0.00 Pitch Angle =    -0.00

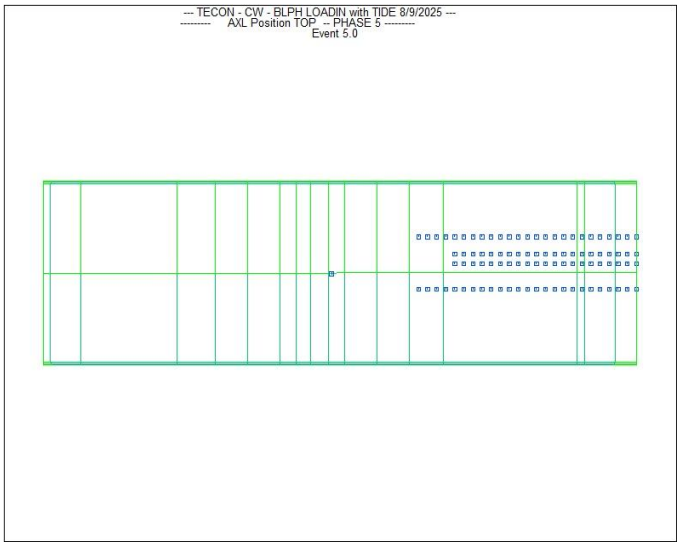
                                   Wet Radii Of Gyration About CG

                              K-X =     8.37 K-Y =    28.45 K-Z =    29.02

                                      GMT =    19.38 GML =   220.22

                              /-- Center of Gravity ---/  Sounding   % Full
                        Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                              ----------------  Part AXL5       ------------
                              LOAD_GRO   1842.45    15.98    -1.52     7.10
                              ----------------  Part CF         ------------
                              LOAD_GRO     30.00    69.38    11.22     8.10
                              ----------------  Part GRI&SF-B   ------------
                              LOAD_GRO     75.00    30.86    -1.14     7.35
                              ----------------  Part GRI&SF-C   ------------
                              LOAD_GRO      0.50    67.44    11.22     7.10
                              ----------------  Part GRI&SF-T   ------------
                              LOAD_GRO     45.00    65.20    -2.92     7.40
                              ----------------  Part TP         ------------
                              LOAD_GRO    254.50    65.54    -2.14     9.35
                              ----------------  Part VERVECE    ------------
                              LOAD_GRO   1832.80    47.02     0.00     3.52
                                         --- Contents ---
                        1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                        1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                        1SC          7.05     5.60     3.43     0.11     0.18     3.00
                        1SW          7.05     5.60    10.28     0.11     0.18     3.00
                        2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                        2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                        2SC         26.21    19.43     3.43     0.09     0.18     3.00
                        2SW         68.26    19.43    10.23     0.24     0.48     7.81
                        3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                        3PW         84.15    40.00   -10.24     0.30     0.59     9.63
                        3SC         26.21    40.01     3.43     0.09     0.18     3.00
                        3SW        112.88    40.00    10.26     0.40     0.79    12.92
                        4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                        4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                        4SC         26.21    60.58     3.43     0.09     0.18     3.00
                        4SW        425.13    60.58    10.28     1.49     2.97    48.66
                        5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                        5PW        695.46    80.29   -10.28     2.86     5.41    87.64
                        5SC         14.53    83.89     3.43     0.10     0.18     3.00
                        5SW        725.76    80.33    10.28     2.97     5.62    91.45
                              ========  ========  =======  =======  =======
                              Total      6646.18    46.81    -0.00     4.23
                              Buoyancy   6646.18    46.81    -0.00     1.49
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 5 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 5: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.92 BOWST        2.92 MIDPO        2.92 MIDST        2.92 STEPO        2.92 STEST        2.92
```

```
**********************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 5 ---------                                 . *
*                                                                                                        *
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 5: Units Are Degrees, Meters, and M-Tons Unless Specified

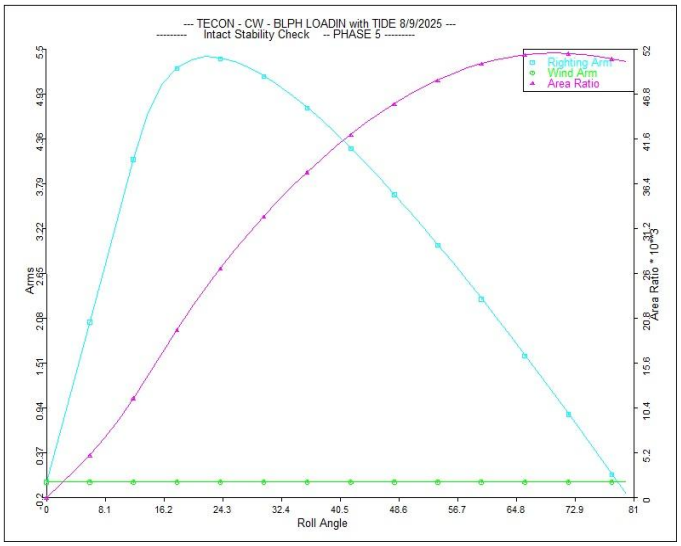
Moment Scaled By 6646.18, KG = 4.23, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = -0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.92	0.00	0.00	9999.00	3.78	0.00	0.00	0.00	0.00	0.00	-0.000
2.92	2.00	0.00	9999.00	3.32	0.68	0.68	0.00	0.00	1561.28	0.678
2.91	4.00	0.00	9999.00	2.87	1.36	2.71	0.00	0.00	3178.84	1.357
2.89	6.00	0.00	9999.00	2.41	2.04	6.11	0.00	0.00	4913.66	2.039
2.87	8.00	0.00	9999.00	1.95	2.72	10.87	0.00	0.00	6840.78	2.724
2.84	10.00	0.00	9999.00	1.49	3.41	17.01	0.00	0.00	9062.13	3.414
2.81	12.00	0.00	9999.00	1.04	4.10	24.53	0.00	0.00	9999.00	4.104
2.75	14.00	0.00	9999.00	0.60	4.69	33.33	0.00	0.00	9999.00	4.692
2.68	16.00	0.00	9999.00	0.17	5.05	43.07	0.00	0.00	9999.00	5.055
2.61	18.00	0.00	9999.00	-0.26	5.26	53.39	0.00	0.00	9999.00	5.260
2.53	20.00	0.00	9999.00	-0.69	5.36	64.01	0.00	0.00	9999.00	5.364
2.45	22.00	0.00	9999.00	-1.11	5.40	74.78	0.00	0.00	9999.00	5.400
2.37	24.00	0.00	9999.00	-1.54	5.39	85.56	0.00	0.00	9999.00	5.387
2.29	26.00	0.00	9999.00	-1.97	5.34	96.29	0.00	0.00	9999.00	5.337
2.20	28.00	0.00	9999.00	-2.39	5.26	106.89	0.00	0.00	9999.00	5.259
2.11	30.00	0.00	9999.00	-2.81	5.16	117.30	0.00	0.00	9999.00	5.159
2.02	32.00	0.00	9999.00	-3.23	5.04	127.50	0.00	0.00	9999.00	5.040
1.92	34.00	0.00	9999.00	-3.64	4.91	137.45	0.00	0.00	9999.00	4.905
1.82	36.00	0.00	9999.00	-4.05	4.76	147.11	0.00	0.00	9999.00	4.757
1.72	38.00	0.00	9999.00	-4.45	4.60	156.47	0.00	0.00	9999.00	4.597
1.62	40.00	0.00	9999.00	-4.85	4.43	165.49	0.00	0.00	9999.00	4.425
1.52	42.00	0.00	9999.00	-5.24	4.24	174.16	0.00	0.00	9999.00	4.244
1.41	44.00	0.00	9999.00	-5.63	4.06	182.46	0.00	0.00	9999.00	4.055
1.30	46.00	0.00	9999.00	-6.00	3.86	190.37	0.00	0.00	9999.00	3.859
1.19	48.00	0.00	9999.00	-6.38	3.66	197.89	0.00	0.00	9999.00	3.656
1.08	50.00	0.00	9999.00	-6.74	3.45	204.99	0.00	0.00	9999.00	3.447
0.97	52.00	0.00	9999.00	-7.09	3.23	211.67	0.00	0.00	9999.00	3.232
0.86	54.00	0.00	9999.00	-7.44	3.01	217.91	0.00	0.00	9999.00	3.013
0.75	56.00	0.00	9999.00	-7.78	2.79	223.71	0.00	0.00	9999.00	2.788
0.63	58.00	0.00	9999.00	-8.11	2.56	229.06	0.00	0.00	9999.00	2.559
0.51	60.00	0.00	9999.00	-8.42	2.33	233.95	0.00	0.00	9999.00	2.326
0.40	62.00	0.00	9999.00	-8.73	2.09	238.36	0.00	0.00	9999.00	2.089
0.28	64.00	0.00	9999.00	-9.03	1.85	242.30	0.00	0.00	9999.00	1.849
0.16	66.00	0.00	9999.00	-9.32	1.61	245.76	0.00	0.00	9999.00	1.606
0.05	68.00	0.00	9999.00	-9.59	1.36	248.72	0.00	0.00	9999.00	1.360
-0.07	70.00	0.00	9999.00	-9.85	1.11	251.20	0.00	0.00	9999.00	1.112
-0.19	72.00	0.00	9999.00	-10.11	0.86	253.17	0.00	0.00	9999.00	0.862
-0.31	74.00	0.00	9999.00	-10.35	0.61	254.64	0.00	0.00	9999.00	0.609
-0.42	76.00	0.00	9999.00	-10.57	0.35	255.61	0.00	0.00	9999.00	0.355
-0.54	78.00	0.00	9999.00	-10.79	0.10	256.06	0.00	0.01	9999.00	0.099
-0.65	80.00	0.00	9999.00	-10.99	-0.16	256.00	0.00	0.01	9999.00	-0.158


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 5 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
8.1
16.2
24.3
32.4
40.5
48.6
56.7
64.8
72.9
81

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 5 ------  *
*                                                                                     *
***************************************************************************************************************

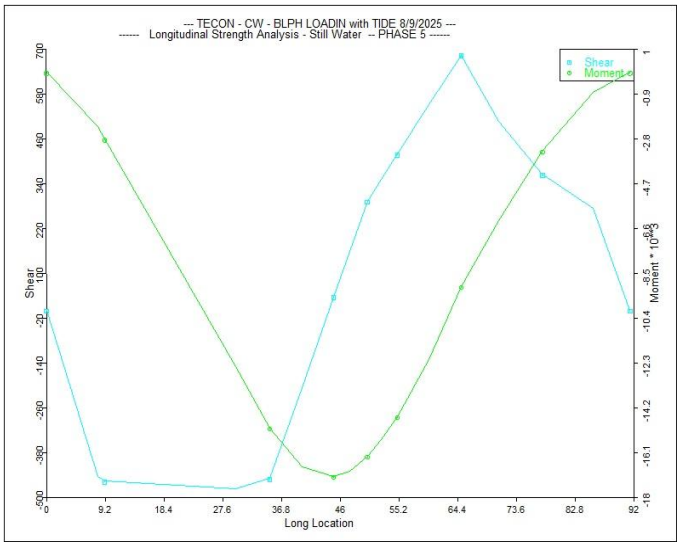
                    +++ L O N G I T U D I N A L   S T R E N G T H   R E S U L T S +++
                    ================================================================

                Process is 5: Units Are Degrees, Meters, and M-Tons Unless Specified

                                    Allowable Stress =     155.00 Mpa

                                  Allowable Deflection =       1.00 MM
```

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-444	-2296	-0.0908	14.1673
9.14	-456	-2824	-0.1117	16.1607
29.72	-477	-12472	-0.4929	46.2721
35.00	-449	-15061	-0.5952	50.9742
40.00	-206	-16703	-0.6601	53.7325
45.00	36	-17128	-0.6769	54.6606
47.50	158	-16885	-0.6673	54.4184
50.29	293	-16257	-0.6424	53.5994
52.50	352	-15545	-0.6143	52.5551
55.00	419	-14583	-0.5763	50.9707
60.00	551	-12158	-0.4804	46.6283
65.00	683	-9071	-0.3585	40.9518
70.87	507	-6269	-0.2478	33.0199
77.72	364	-3327	-0.1315	22.5674
85.70	273	-858	-0.0340	9.5584
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                                  *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                                         *
*          ---------     Intact Stability Check    -- PHASE 6 ---------                                              *
*                                                                                                                     *
*********************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                   Process is 6: Units Are Degrees, Meters, and M-Tons Unless Specified

                                  Results Are Reported In Body System

                       Draft =     2.85 Roll Angle =     0.00 Pitch Angle =     0.00

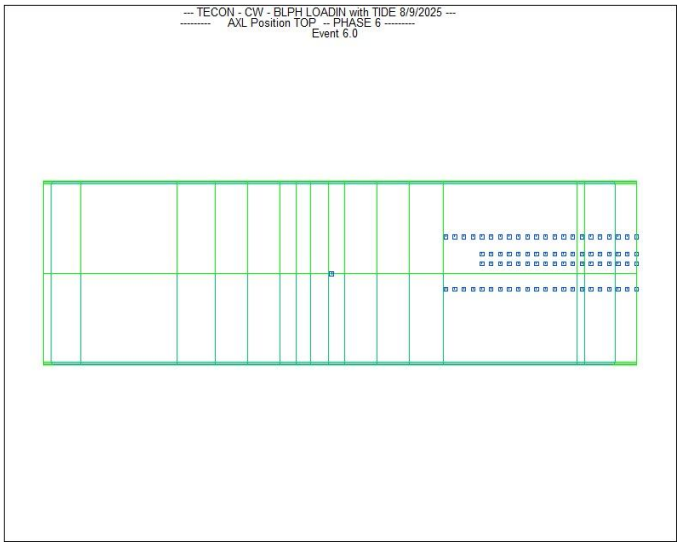
                                    Wet Radii Of Gyration About CG

                              K-X =     8.52 K-Y =    28.39 K-Z =    28.99

                                      GMT =    20.06 GML =   224.27

                              /-- Center of Gravity ---/  Sounding   % Full
                        Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                              ----------------  Part AXL6       ------------
                              LOAD_GRO   1608.90    13.90    -1.51     7.10
                              ----------------  Part CF         ------------
                              LOAD_GRO     30.00    69.38    11.22     8.10
                              ----------------  Part GRI&SF-B   ------------
                              LOAD_GRO     75.00    30.86    -1.14     7.35
                              ----------------  Part GRI&SF-C   ------------
                              LOAD_GRO      0.50    67.44    11.22     7.10
                              ----------------  Part GRI&SF-T   ------------
                              LOAD_GRO     45.00    65.20    -2.92     7.40
                              ----------------  Part TP         ------------
                              LOAD_GRO    254.50    65.54    -2.14     9.35
                              ----------------  Part VERVECE    ------------
                              LOAD_GRO   1832.80    47.02     0.00     3.52
                                           --- Contents ---
                        1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                        1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                        1SC          7.05     5.60     3.43     0.11     0.18     3.00
                        1SW          7.05     5.60    10.28     0.11     0.18     3.00
                        2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                        2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                        2SC         26.21    19.43     3.43     0.09     0.18     3.00
                        2SW         68.26    19.43    10.23     0.24     0.48     7.81
                        3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                        3PW        165.90    40.01   -10.27     0.58     1.16    18.99
                        3SC         26.21    40.01     3.43     0.09     0.18     3.00
                        3SW        177.70    40.00    10.27     0.63     1.25    20.34
                        4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                        4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                        4SC         26.21    60.58     3.43     0.09     0.18     3.00
                        4SW        425.13    60.58    10.28     1.49     2.97    48.66
                        5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                        5PW        663.82    80.25   -10.28     2.74     5.18    83.65
                        5SC         14.53    83.89     3.43     0.10     0.18     3.00
                        5SW        675.84    80.27    10.28     2.79     5.27    85.16
                              ========  ========  =======  =======  =======
                              Total      6477.65    46.82     0.00     4.03
                              Buoyancy   6477.65    46.82     0.00     1.45
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 6 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 6: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.85 BOWST        2.85 MIDPO        2.85 MIDST        2.85 STEPO        2.85 STEST        2.85
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check     -- PHASE 6 ---------                              . *
*                                                                                                       *
*****************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 6: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 6477.65, KG = 4.03, and Wind Speed = 10 Knots

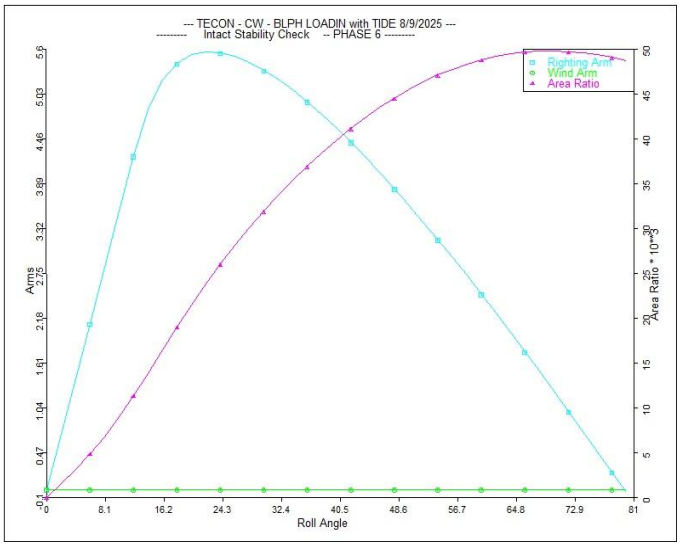
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.85	0.00	0.00	9999.00	3.85	0.00	0.00	0.00	0.00	0.00	-0.000
2.84	2.00	0.00	9999.00	3.39	0.70	0.70	0.00	0.00	1539.77	0.701
2.84	4.00	0.00	9999.00	2.94	1.40	2.81	0.00	0.00	3134.56	1.404
2.82	6.00	0.00	9999.00	2.48	2.11	6.32	0.00	0.00	4843.97	2.110
2.80	8.00	0.00	9999.00	2.02	2.82	11.25	0.00	0.00	6740.81	2.819
2.77	10.00	0.00	9999.00	1.57	3.53	17.60	0.00	0.00	8922.33	3.533
2.74	12.00	0.00	9999.00	1.11	4.24	25.38	0.00	0.00	9999.00	4.240
2.67	14.00	0.00	9999.00	0.68	4.83	34.44	0.00	0.00	9999.00	4.826
2.59	16.00	0.00	9999.00	0.26	5.20	44.47	0.00	0.00	9999.00	5.202
2.51	18.00	0.00	9999.00	-0.16	5.41	55.09	0.00	0.00	9999.00	5.414
2.42	20.00	0.00	9999.00	-0.58	5.52	66.02	0.00	0.00	9999.00	5.524
2.33	22.00	0.00	9999.00	-0.99	5.56	77.11	0.00	0.00	9999.00	5.563
2.24	24.00	0.00	9999.00	-1.41	5.55	88.23	0.00	0.00	9999.00	5.552
2.15	26.00	0.00	9999.00	-1.83	5.50	99.28	0.00	0.00	9999.00	5.504
2.05	28.00	0.00	9999.00	-2.24	5.43	110.21	0.00	0.00	9999.00	5.428
1.95	30.00	0.00	9999.00	-2.65	5.33	120.97	0.00	0.00	9999.00	5.329
1.85	32.00	0.00	9999.00	-3.06	5.21	131.51	0.00	0.00	9999.00	5.211
1.74	34.00	0.00	9999.00	-3.46	5.08	141.80	0.00	0.00	9999.00	5.077
1.64	36.00	0.00	9999.00	-3.86	4.93	151.80	0.00	0.00	9999.00	4.929
1.53	38.00	0.00	9999.00	-4.25	4.77	161.50	0.00	0.00	9999.00	4.768
1.42	40.00	0.00	9999.00	-4.64	4.60	170.87	0.00	0.00	9999.00	4.597
1.30	42.00	0.00	9999.00	-5.03	4.42	179.88	0.00	0.00	9999.00	4.416
1.19	44.00	0.00	9999.00	-5.40	4.23	188.52	0.00	0.00	9999.00	4.226
1.07	46.00	0.00	9999.00	-5.77	4.03	196.77	0.00	0.00	9999.00	4.028
0.96	48.00	0.00	9999.00	-6.14	3.82	204.63	0.00	0.00	9999.00	3.824
0.84	50.00	0.00	9999.00	-6.49	3.61	212.07	0.00	0.00	9999.00	3.614
0.72	52.00	0.00	9999.00	-6.84	3.40	219.08	0.00	0.00	9999.00	3.397
0.60	54.00	0.00	9999.00	-7.18	3.18	225.65	0.00	0.00	9999.00	3.176
0.48	56.00	0.00	9999.00	-7.51	2.95	231.77	0.00	0.00	9999.00	2.949
0.36	58.00	0.00	9999.00	-7.84	2.72	237.44	0.00	0.00	9999.00	2.717
0.24	60.00	0.00	9999.00	-8.15	2.48	242.64	0.00	0.00	9999.00	2.481
0.12	62.00	0.00	9999.00	-8.45	2.24	247.36	0.00	0.01	9999.00	2.241
-0.00	64.00	0.00	9999.00	-8.74	2.00	251.60	0.00	0.01	9999.00	1.996
-0.13	66.00	0.00	9999.00	-9.03	1.75	255.34	0.00	0.01	9999.00	1.749
-0.25	68.00	0.00	9999.00	-9.30	1.50	258.59	0.00	0.01	9999.00	1.498
-0.37	70.00	0.00	9999.00	-9.56	1.25	261.33	0.00	0.01	9999.00	1.245
-0.49	72.00	0.00	9999.00	-9.80	0.99	263.57	0.00	0.01	9999.00	0.991
-0.61	74.00	0.00	9999.00	-10.04	0.73	265.29	0.00	0.01	9999.00	0.734
-0.73	76.00	0.00	9999.00	-10.26	0.48	266.51	0.00	0.01	9999.00	0.477
-0.85	78.00	0.00	9999.00	-10.47	0.22	267.20	0.00	0.01	9999.00	0.219
-0.97	80.00	0.00	9999.00	-10.67	-0.04	267.38	0.00	0.01	9999.00	-0.040

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 6 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
8.1
16.2
24.3
32.4
40.5
48.6
56.7
64.8
72.9
81

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 6 ------  *
*                                                                                     *
***************************************************************************************************************
```

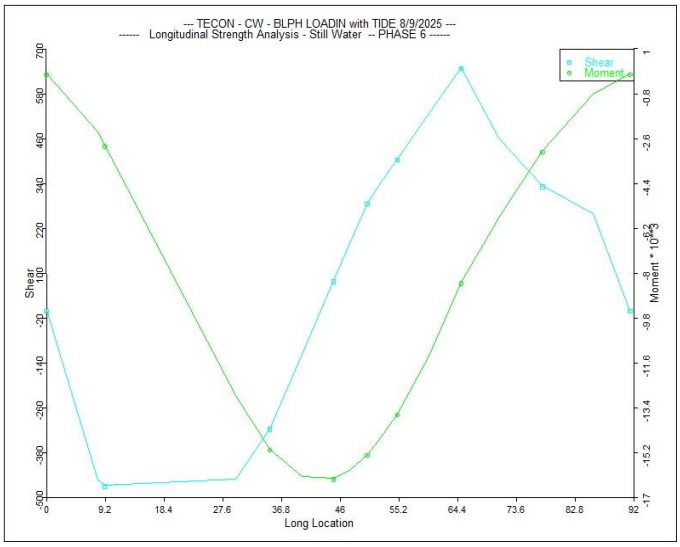
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 6: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-453	-2329	-0.0921	13.9581
9.14	-468	-2870	-0.1134	15.9211
29.72	-451	-12928	-0.5109	45.3064
35.00	-316	-15071	-0.5956	49.7103
40.00	-117	-16158	-0.6385	52.1840
45.00	80	-16254	-0.6423	52.8856
47.50	178	-15931	-0.6296	52.5643
50.29	288	-15281	-0.6039	51.6879
52.50	343	-14585	-0.5764	50.6219
55.00	405	-13651	-0.5395	49.0377
60.00	528	-11320	-0.4473	44.7716
65.00	650	-8375	-0.3310	39.2633
70.87	462	-5800	-0.2292	31.6247
77.72	333	-3115	-0.1231	21.6026
85.70	259	-823	-0.0326	9.1490
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 7 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 7: Units Are Degrees, Meters, and M-Tons Unless Specified

                                Results Are Reported In Body System

                      Draft =     2.69 Roll Angle =     0.00 Pitch Angle =     0.00

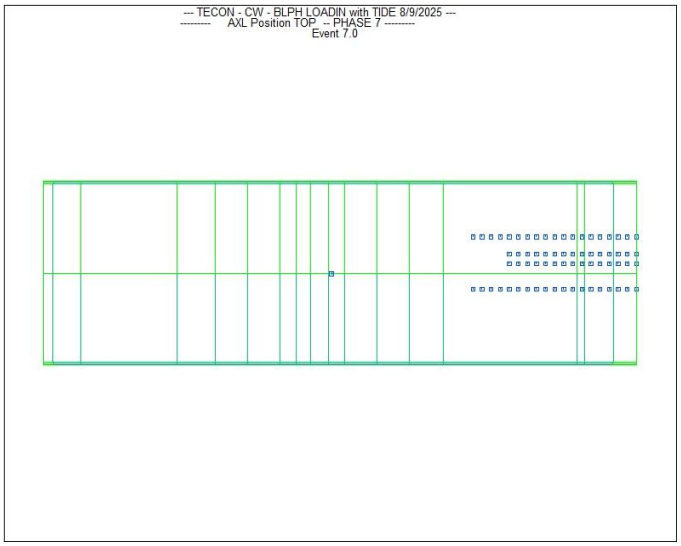
                                  Wet Radii Of Gyration About CG

                             K-X =     8.58 K-Y =    28.49 K-Z =    29.07

                                     GMT =    21.38 GML =   233.95

                             /-- Center of Gravity ---/  Sounding   % Full
                    Name      Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL7       ------------
                             LOAD_GRO   1375.35    11.82    -1.51     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                        --- Contents ---
                      1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                      1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                      1SC          7.05     5.60     3.43     0.11     0.18     3.00
                      1SW          7.05     5.60    10.28     0.11     0.18     3.00
                      2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                      2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                      2SC         26.21    19.43     3.43     0.09     0.18     3.00
                      2SW         68.26    19.43    10.23     0.24     0.48     7.81
                      3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                      3PW        171.55    40.01   -10.27     0.60     1.20    19.64
                      3SC         26.21    40.01     3.43     0.09     0.18     3.00
                      3SW        165.89    40.01    10.27     0.58     1.16    18.99
                      4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                      4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                      4SC         26.21    60.58     3.43     0.09     0.18     3.00
                      4SW        425.13    60.58    10.28     1.49     2.97    48.66
                      5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                      5PW        601.97    80.16   -10.28     2.52     4.75    75.86
                      5SC         14.53    83.89     3.43     0.10     0.18     3.00
                      5SW        596.21    80.15    10.28     2.49     4.71    75.13
                             ========  ========  =======  =======  =======
                             Total      6096.45    46.82     0.00     3.90
                             Buoyancy   6096.45    46.82     0.00     1.37
```




```
                    ******************************************************
*                                       ***  MOSES   ***                                                  *
 *                                       -----------------                      23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 7 ---------                                  *
*                                                                                                         *
***********************************************************************************************************

                          +++ D R A F T   M A R K   R E A D I N G S +++
                          ============================================

                Process is 7: Units Are Degrees, Meters, and M-Tons Unless Specified

  Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
-------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

BOWPO        2.69 BOWST        2.69 MIDPO        2.69 MIDST        2.69 STEPO        2.69 STEST        2.69
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 7 ---------                                . *
*                                                                                                       *
*************************************************************************************************************
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 7: Units Are Degrees, Meters, and M-Tons Unless Specified

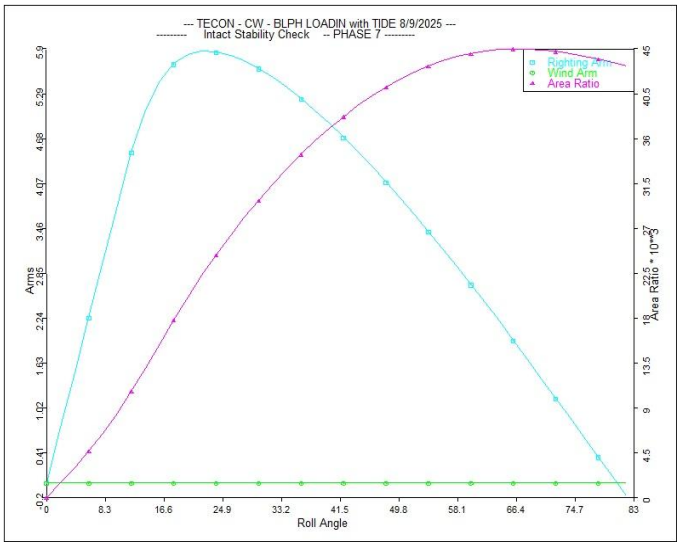
Moment Scaled By 6096.45, KG = 3.90, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.69	0.00	0.00	9999.00	4.01	0.00	0.00	0.00	0.00	0.00	-0.000
2.69	2.00	0.00	9999.00	3.55	0.75	0.75	0.00	0.00	1471.52	0.747
2.68	4.00	0.00	9999.00	3.10	1.50	2.99	0.00	0.00	2994.50	1.497
2.66	6.00	0.00	9999.00	2.64	2.25	6.74	0.00	0.00	4625.13	2.250
2.64	8.00	0.00	9999.00	2.18	3.01	12.00	0.00	0.00	6431.09	3.006
2.61	10.00	0.00	9999.00	1.72	3.77	18.77	0.00	0.00	8458.58	3.768
2.57	12.00	0.00	9999.00	1.27	4.50	27.03	0.00	0.00	9999.00	4.496
2.50	14.00	0.00	9999.00	0.85	5.06	36.59	0.00	0.00	9999.00	5.063
2.39	16.00	0.00	9999.00	0.46	5.47	47.12	0.00	0.00	9999.00	5.466
2.29	18.00	0.00	9999.00	0.06	5.70	58.29	0.00	0.00	9999.00	5.698
2.18	20.00	0.00	9999.00	-0.33	5.82	69.80	0.00	0.00	9999.00	5.819
2.07	22.00	0.00	9999.00	-0.73	5.86	81.49	0.00	0.00	9999.00	5.864
1.95	24.00	0.00	9999.00	-1.12	5.86	93.21	0.00	0.00	9999.00	5.857
1.83	26.00	0.00	9999.00	-1.51	5.81	104.88	0.00	0.00	9999.00	5.811
1.71	28.00	0.00	9999.00	-1.90	5.74	116.42	0.00	0.00	9999.00	5.735
1.59	30.00	0.00	9999.00	-2.29	5.64	127.79	0.00	0.00	9999.00	5.635
1.47	32.00	0.00	9999.00	-2.68	5.52	138.95	0.00	0.00	9999.00	5.516
1.34	34.00	0.00	9999.00	-3.06	5.38	149.84	0.00	0.00	9999.00	5.379
1.21	36.00	0.00	9999.00	-3.44	5.23	160.45	0.00	0.00	9999.00	5.227
1.09	38.00	0.00	9999.00	-3.81	5.06	170.74	0.00	0.00	9999.00	5.063
0.96	40.00	0.00	9999.00	-4.18	4.89	180.69	0.00	0.00	9999.00	4.886
0.82	42.00	0.00	9999.00	-4.55	4.70	190.27	0.00	0.00	9999.00	4.700
0.69	44.00	0.00	9999.00	-4.91	4.50	199.48	0.00	0.01	9999.00	4.504
0.56	46.00	0.00	9999.00	-5.26	4.30	208.28	0.00	0.01	9999.00	4.300
0.43	48.00	0.00	9999.00	-5.61	4.09	216.67	0.00	0.01	9999.00	4.089
0.29	50.00	0.00	9999.00	-5.95	3.87	224.63	0.00	0.01	9999.00	3.872
0.16	52.00	0.00	9999.00	-6.28	3.65	232.15	0.00	0.01	9999.00	3.648
0.02	54.00	0.00	9999.00	-6.60	3.42	239.22	0.00	0.01	9999.00	3.418
-0.11	56.00	0.00	9999.00	-6.92	3.18	245.82	0.00	0.01	9999.00	3.183
-0.25	58.00	0.00	9999.00	-7.23	2.94	251.94	0.00	0.01	9999.00	2.942
-0.38	60.00	0.00	9999.00	-7.53	2.70	257.58	0.00	0.01	9999.00	2.697
-0.52	62.00	0.00	9999.00	-7.82	2.45	262.73	0.00	0.01	9999.00	2.446
-0.65	64.00	0.00	9999.00	-8.10	2.19	267.36	0.00	0.01	9999.00	2.192
-0.78	66.00	0.00	9999.00	-8.37	1.93	271.49	0.00	0.01	9999.00	1.935
-0.91	68.00	0.00	9999.00	-8.63	1.67	275.10	0.00	0.01	9999.00	1.674
-1.04	70.00	0.00	9999.00	-8.88	1.41	278.19	0.00	0.01	9999.00	1.412
-1.17	72.00	0.00	9999.00	-9.12	1.15	280.75	0.00	0.01	9999.00	1.148
-1.30	74.00	0.00	9999.00	-9.35	0.88	282.78	0.00	0.01	9999.00	0.883
-1.43	76.00	0.00	9999.00	-9.57	0.62	284.28	0.00	0.01	9999.00	0.616
-1.55	78.00	0.00	9999.00	-9.77	0.35	285.24	0.00	0.01	9999.00	0.349
-1.67	80.00	0.00	9999.00	-9.97	0.08	285.67	0.00	0.01	9999.00	0.081
-1.79	82.00	0.00	9999.00	-10.15	-0.19	285.57	0.00	0.01	9999.00	-0.188


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
-------- Intact Stability Check -- PHASE 7 --------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**-3
Roll Angle
0
8.3
16.6
24.9
33.2
41.5
49.8
58.1
66.4
74.7
83

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 7 ------  *
*                                                                                     *
***************************************************************************************************************
```

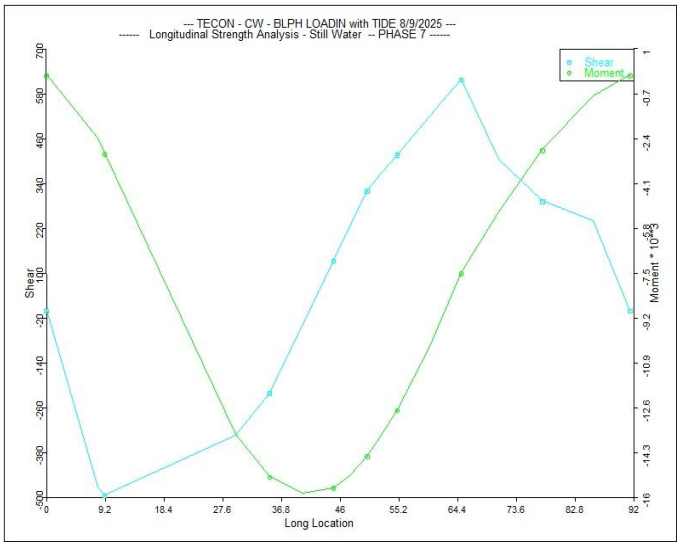
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 7: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-473	-2397	-0.0948	13.9457
9.14	-493	-2963	-0.1171	15.9060
29.72	-333	-13632	-0.5387	44.8727
35.00	-219	-15209	-0.6010	48.9726
40.00	-41	-15865	-0.6269	51.1409
45.00	135	-15632	-0.6178	51.5686
47.50	223	-15185	-0.6001	51.1338
50.29	321	-14424	-0.5700	50.1549
52.50	367	-13665	-0.5400	49.0286
55.00	418	-12684	-0.5013	47.3999
60.00	519	-10343	-0.4087	43.1253
65.00	619	-7498	-0.2963	37.7150
70.87	406	-5181	-0.2048	30.3118
77.72	294	-2827	-0.1118	20.6803
85.70	239	-774	-0.0306	8.7553
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 8 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 8: Units Are Degrees, Meters, and M-Tons Unless Specified

                                Results Are Reported In Body System

                      Draft =     2.59 Roll Angle =     0.00 Pitch Angle =     0.00

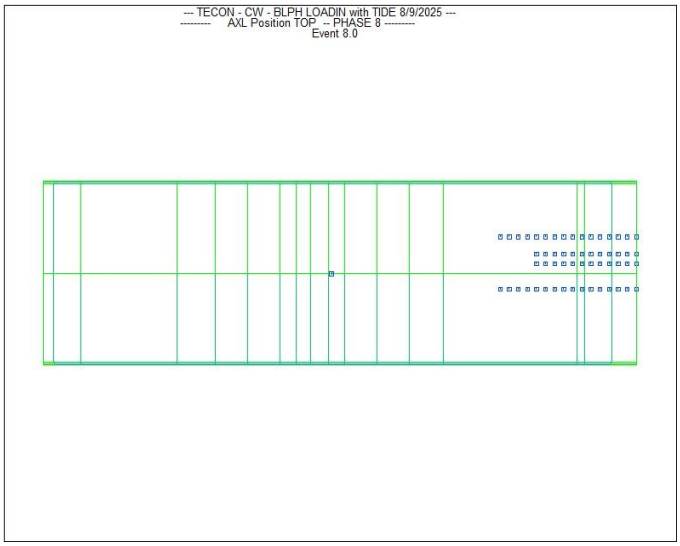
                                  Wet Radii Of Gyration About CG

                             K-X =     8.71 K-Y =    28.11 K-Z =    28.72

                                     GMT =    22.37 GML =   240.32

                             /-- Center of Gravity ---/  Sounding   % Full
                    Name      Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL8       ------------
                             LOAD_GRO   1141.80     9.75    -1.50     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                        --- Contents ---
                      1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                      1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                      1SC          7.05     5.60     3.43     0.11     0.18     3.00
                      1SW          7.05     5.60    10.28     0.11     0.18     3.00
                      2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                      2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                      2SC         26.21    19.43     3.43     0.09     0.18     3.00
                      2SW         68.26    19.43    10.23     0.24     0.48     7.81
                      3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                      3PW        253.66    40.01   -10.27     0.89     1.77    29.04
                      3SC         26.21    40.01     3.43     0.09     0.18     3.00
                      3SW        230.53    40.01    10.27     0.81     1.61    26.39
                      4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                      4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                      4SC         26.21    60.58     3.43     0.09     0.18     3.00
                      4SW        425.13    60.58    10.28     1.49     2.97    48.66
                      5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                      5PW        540.91    80.05   -10.28     2.29     4.32    68.16
                      5SC         14.53    83.89     3.43     0.10     0.18     3.00
                      5SW        517.40    80.00    10.28     2.20     4.15    65.20
                             ========  ========  =======  =======  =======
                             Total      5869.78    46.82     0.00     3.69
                             Buoyancy   5869.78    46.82     0.00     1.32
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                        23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 8 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                           +++ D R A F T   M A R K   R E A D I N G S +++
                           ============================================

                  Process is 8: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.59 BOWST        2.59 MIDPO        2.59 MIDST        2.59 STEPO        2.59 STEST        2.59
```

```
**********************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 8 ---------                                 . *
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 8: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 5869.78, KG = 3.69, and Wind Speed = 10 Knots

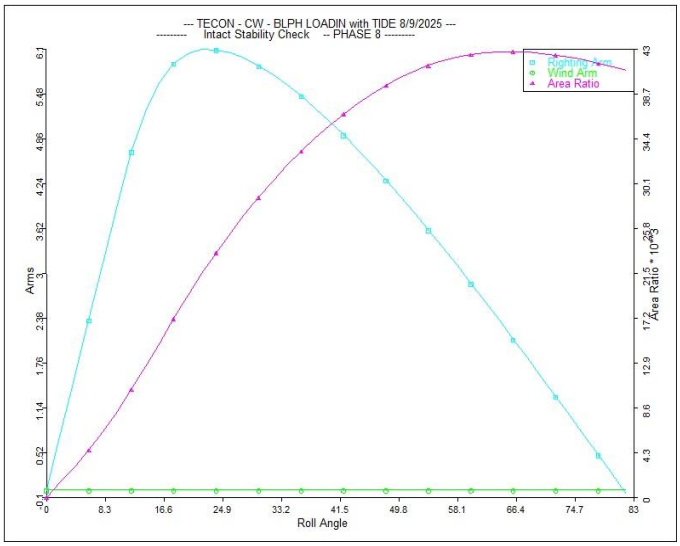
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.59	0.00	0.00	9999.00	4.10	0.00	0.00	0.00	0.00	0.00	-0.000
2.59	2.00	0.00	9999.00	3.65	0.78	0.78	0.00	0.00	1441.35	0.782
2.58	4.00	0.00	9999.00	3.19	1.57	3.13	0.00	0.00	2932.47	1.566
2.57	6.00	0.00	9999.00	2.73	2.35	7.05	0.00	0.00	4528.03	2.354
2.55	8.00	0.00	9999.00	2.28	3.15	12.55	0.00	0.00	6293.54	3.146
2.52	10.00	0.00	9999.00	1.82	3.94	19.64	0.00	0.00	8248.66	3.941
2.48	12.00	0.00	9999.00	1.37	4.68	28.25	0.00	0.00	9999.00	4.676
2.39	14.00	0.00	9999.00	0.96	5.24	38.17	0.00	0.00	9999.00	5.235
2.28	16.00	0.00	9999.00	0.58	5.65	49.05	0.00	0.00	9999.00	5.649
2.16	18.00	0.00	9999.00	0.20	5.90	60.60	0.00	0.00	9999.00	5.899
2.03	20.00	0.00	9999.00	-0.19	6.03	72.53	0.00	0.00	9999.00	6.033
1.91	22.00	0.00	9999.00	-0.57	6.09	84.65	0.00	0.00	9999.00	6.088
1.78	24.00	0.00	9999.00	-0.95	6.09	96.82	0.00	0.00	9999.00	6.086
1.65	26.00	0.00	9999.00	-1.33	6.04	108.95	0.00	0.00	9999.00	6.043
1.51	28.00	0.00	9999.00	-1.70	5.97	120.96	0.00	0.00	9999.00	5.967
1.38	30.00	0.00	9999.00	-2.08	5.86	132.80	0.00	0.00	9999.00	5.865
1.24	32.00	0.00	9999.00	-2.45	5.74	144.40	0.00	0.00	9999.00	5.743
1.10	34.00	0.00	9999.00	-2.82	5.60	155.75	0.00	0.00	9999.00	5.603
0.96	36.00	0.00	9999.00	-3.19	5.45	166.80	0.00	0.01	9999.00	5.448
0.82	38.00	0.00	9999.00	-3.55	5.28	177.53	0.00	0.01	9999.00	5.280
0.68	40.00	0.00	9999.00	-3.91	5.10	187.91	0.00	0.01	9999.00	5.101
0.54	42.00	0.00	9999.00	-4.26	4.91	197.92	0.00	0.01	9999.00	4.910
0.40	44.00	0.00	9999.00	-4.61	4.71	207.54	0.00	0.01	9999.00	4.710
0.25	46.00	0.00	9999.00	-4.95	4.50	216.75	0.00	0.01	9999.00	4.502
0.11	48.00	0.00	9999.00	-5.29	4.29	225.54	0.00	0.01	9999.00	4.286
-0.03	50.00	0.00	9999.00	-5.62	4.06	233.89	0.00	0.01	9999.00	4.063
-0.18	52.00	0.00	9999.00	-5.94	3.83	241.78	0.00	0.01	9999.00	3.833
-0.32	54.00	0.00	9999.00	-6.26	3.60	249.22	0.00	0.01	9999.00	3.598
-0.47	56.00	0.00	9999.00	-6.57	3.36	256.17	0.00	0.01	9999.00	3.356
-0.61	58.00	0.00	9999.00	-6.87	3.11	262.64	0.00	0.01	9999.00	3.109
-0.75	60.00	0.00	9999.00	-7.16	2.86	268.60	0.00	0.01	9999.00	2.859
-0.89	62.00	0.00	9999.00	-7.44	2.60	274.07	0.00	0.01	9999.00	2.604
-1.03	64.00	0.00	9999.00	-7.72	2.35	279.02	0.00	0.01	9999.00	2.346
-1.17	66.00	0.00	9999.00	-7.98	2.09	283.45	0.00	0.01	9999.00	2.086
-1.31	68.00	0.00	9999.00	-8.24	1.82	287.36	0.00	0.01	9999.00	1.824
-1.44	70.00	0.00	9999.00	-8.48	1.56	290.74	0.00	0.01	9999.00	1.559
-1.58	72.00	0.00	9999.00	-8.72	1.29	293.59	0.00	0.01	9999.00	1.292
-1.71	74.00	0.00	9999.00	-8.94	1.02	295.91	0.00	0.01	9999.00	1.024
-1.84	76.00	0.00	9999.00	-9.16	0.75	297.69	0.00	0.01	9999.00	0.755
-1.97	78.00	0.00	9999.00	-9.36	0.48	298.93	0.00	0.01	9999.00	0.484
-2.09	80.00	0.00	9999.00	-9.55	0.21	299.63	0.00	0.01	9999.00	0.213
-2.21	82.00	0.00	9999.00	-9.73	-0.06	299.78	0.00	0.01	9999.00	-0.059

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
Intact Stability Check -- PHASE 8
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10^3
Roll Angle
0
8.3
16.6
24.9
33.2
41.5
49.8
58.1
66.4
74.7
83

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 8 ------  *
*                                                                                     *
***************************************************************************************************************
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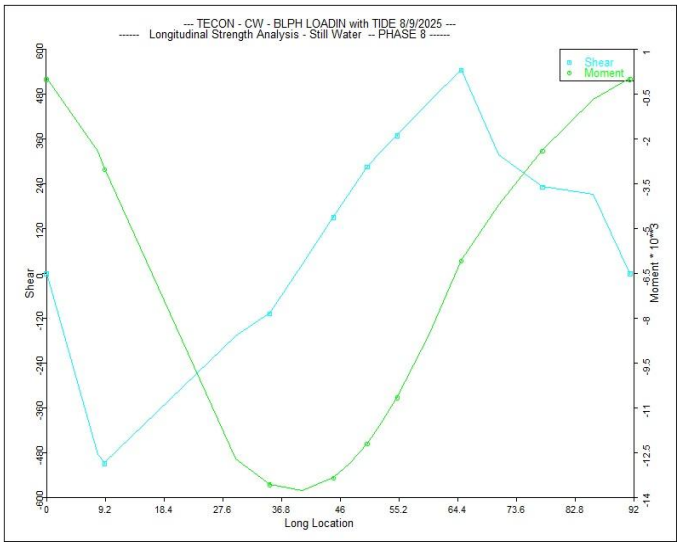
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 8: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-484	-2434	-0.0962	12.7198
9.14	-507	-3015	-0.1192	14.5044
29.72	-168	-12720	-0.5027	40.1970
35.00	-106	-13561	-0.5359	43.5597
40.00	23	-13772	-0.5442	45.2133
45.00	151	-13338	-0.5271	45.3547
47.50	215	-12881	-0.5090	44.8705
50.29	286	-12182	-0.4814	43.9112
52.50	325	-11508	-0.4548	42.8551
55.00	369	-10639	-0.4205	41.3617
60.00	458	-8571	-0.3387	37.5231
65.00	545	-6065	-0.2397	32.7434
70.87	316	-4230	-0.1672	26.2774
77.72	232	-2394	-0.0947	17.9198
85.70	211	-697	-0.0276	7.5883
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 9 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 9: Units Are Degrees, Meters, and M-Tons Unless Specified

                                Results Are Reported In Body System

                      Draft =     2.50 Roll Angle =     0.00 Pitch Angle =     0.00

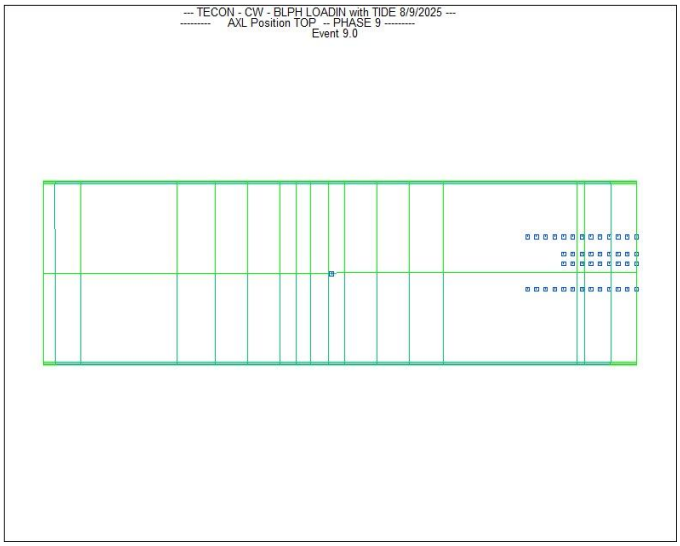
                                  Wet Radii Of Gyration About CG

                             K-X =     8.84 K-Y =    27.44 K-Z =    28.10

                                     GMT =    23.43 GML =   247.29

                             /-- Center of Gravity ---/  Sounding   % Full
                    Name      Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL9       ------------
                             LOAD_GRO    908.25     7.69    -1.48     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                        --- Contents ---
                      1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                      1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                      1SC          7.05     5.60     3.43     0.11     0.18     3.00
                      1SW          7.05     5.60    10.28     0.11     0.18     3.00
                      2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                      2PW         26.21    19.43   -10.28     0.09     0.18     3.00
                      2SC         26.21    19.43     3.43     0.09     0.18     3.00
                      2SW         68.26    19.43    10.23     0.24     0.48     7.81
                      3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                      3PW        346.12    40.01   -10.28     1.21     2.42    39.62
                      3SC         26.21    40.01     3.43     0.09     0.18     3.00
                      3SW        305.37    40.01    10.28     1.07     2.14    34.95
                      4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                      4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                      4SC         26.21    60.58     3.43     0.09     0.18     3.00
                      4SW        425.13    60.58    10.28     1.49     2.97    48.66
                      5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                      5PW        467.54    79.88   -10.28     2.01     3.80    58.92
                      5SC         14.53    83.89     3.43     0.10     0.18     3.00
                      5SW        426.41    79.76    10.28     1.85     3.51    53.73
                             ========  ========  =======  =======  =======
                             Total      5639.16    46.82    -0.00     3.50
                             Buoyancy   5639.16    46.82    -0.00     1.27
```




```
                    ******************************************************
*                                       ***  MOSES   ***                                                  *
 *                                       -----------------                      23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 9 ---------                                  *
*                                                                                                        *
**********************************************************************************************************

                          +++ D R A F T   M A R K   R E A D I N G S +++
                          ============================================

                Process is 9: Units Are Degrees, Meters, and M-Tons Unless Specified

  Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
-------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

BOWPO        2.50 BOWST        2.50 MIDPO        2.50 MIDST        2.50 STEPO        2.50 STEST        2.50
```

```
**********************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 9 ---------                                 . *
*                                                                                                        *
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 9: Units Are Degrees, Meters, and M-Tons Unless Specified

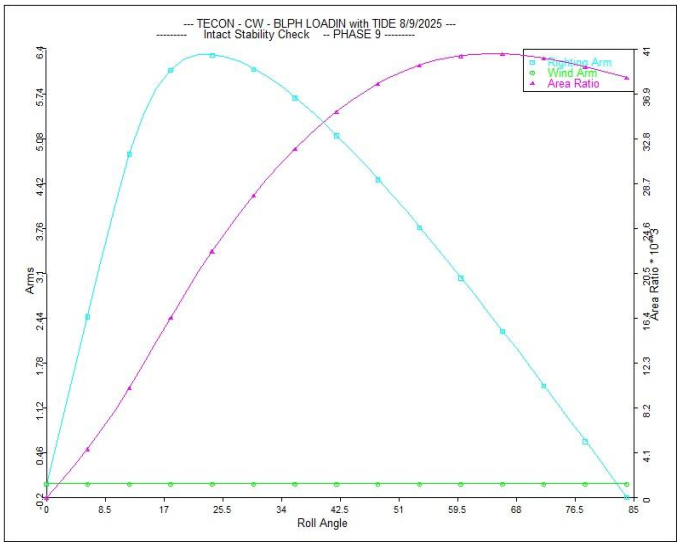
Moment Scaled By 5639.16, KG = 3.50, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.50	0.00	0.00	9999.00	4.20	0.00	0.00	0.00	0.00	0.00	-0.000
2.49	2.00	0.00	9999.00	3.74	0.82	0.82	0.00	0.00	1411.10	0.819
2.48	4.00	0.00	9999.00	3.29	1.64	3.28	0.00	0.00	2870.33	1.640
2.47	6.00	0.00	9999.00	2.83	2.47	7.39	0.00	0.00	4430.91	2.466
2.45	8.00	0.00	9999.00	2.37	3.30	13.15	0.00	0.00	6156.40	3.296
2.42	10.00	0.00	9999.00	1.91	4.13	20.57	0.00	0.00	8029.28	4.127
2.37	12.00	0.00	9999.00	1.47	4.86	29.56	0.00	0.00	9991.91	4.861
2.28	14.00	0.00	9999.00	1.07	5.41	39.83	0.00	0.00	9999.00	5.411
2.16	16.00	0.00	9999.00	0.70	5.83	51.07	0.00	0.00	9999.00	5.828
2.02	18.00	0.00	9999.00	0.33	6.10	62.99	0.00	0.00	9999.00	6.097
1.88	20.00	0.00	9999.00	-0.04	6.25	75.34	0.00	0.00	9999.00	6.245
1.74	22.00	0.00	9999.00	-0.40	6.31	87.89	0.00	0.00	9999.00	6.311
1.60	24.00	0.00	9999.00	-0.77	6.32	100.52	0.00	0.00	9999.00	6.318
1.46	26.00	0.00	9999.00	-1.14	6.28	113.12	0.00	0.00	9999.00	6.282
1.31	28.00	0.00	9999.00	-1.50	6.21	125.61	0.00	0.00	9999.00	6.210
1.16	30.00	0.00	9999.00	-1.86	6.11	137.94	0.00	0.00	9999.00	6.111
1.01	32.00	0.00	9999.00	-2.22	5.99	150.04	0.00	0.01	9999.00	5.989
0.86	34.00	0.00	9999.00	-2.58	5.85	161.87	0.00	0.01	9999.00	5.847
0.71	36.00	0.00	9999.00	-2.93	5.69	173.41	0.00	0.01	9999.00	5.688
0.56	38.00	0.00	9999.00	-3.28	5.51	184.61	0.00	0.01	9999.00	5.514
0.40	40.00	0.00	9999.00	-3.63	5.33	195.45	0.00	0.01	9999.00	5.328
0.25	42.00	0.00	9999.00	-3.97	5.13	205.91	0.00	0.01	9999.00	5.131
0.10	44.00	0.00	9999.00	-4.31	4.92	215.97	0.00	0.01	9999.00	4.924
-0.06	46.00	0.00	9999.00	-4.64	4.71	225.60	0.00	0.01	9999.00	4.708
-0.21	48.00	0.00	9999.00	-4.97	4.49	234.79	0.00	0.01	9999.00	4.485
-0.37	50.00	0.00	9999.00	-5.29	4.26	243.53	0.00	0.01	9999.00	4.256
-0.52	52.00	0.00	9999.00	-5.60	4.02	251.81	0.00	0.01	9999.00	4.021
-0.67	54.00	0.00	9999.00	-5.91	3.78	259.61	0.00	0.01	9999.00	3.780
-0.82	56.00	0.00	9999.00	-6.21	3.54	266.93	0.00	0.01	9999.00	3.536
-0.98	58.00	0.00	9999.00	-6.50	3.29	273.75	0.00	0.01	9999.00	3.287
-1.12	60.00	0.00	9999.00	-6.79	3.03	280.07	0.00	0.01	9999.00	3.034
-1.27	62.00	0.00	9999.00	-7.06	2.78	285.88	0.00	0.01	9999.00	2.777
-1.42	64.00	0.00	9999.00	-7.33	2.52	291.17	0.00	0.01	9999.00	2.517
-1.57	66.00	0.00	9999.00	-7.59	2.25	295.95	0.00	0.01	9999.00	2.254
-1.71	68.00	0.00	9999.00	-7.84	1.99	300.19	0.00	0.01	9999.00	1.989
-1.85	70.00	0.00	9999.00	-8.08	1.72	303.90	0.00	0.01	9999.00	1.721
-1.99	72.00	0.00	9999.00	-8.31	1.45	307.07	0.00	0.01	9999.00	1.452
-2.12	74.00	0.00	9999.00	-8.53	1.18	309.71	0.00	0.01	9999.00	1.180
-2.26	76.00	0.00	9999.00	-8.74	0.91	311.79	0.00	0.01	9999.00	0.907
-2.39	78.00	0.00	9999.00	-8.93	0.63	313.33	0.00	0.01	9999.00	0.633
-2.52	80.00	0.00	9999.00	-9.12	0.36	314.32	0.00	0.01	9999.00	0.357
-2.64	82.00	0.00	9999.00	-9.30	0.08	314.76	0.00	0.01	9999.00	0.081
-2.76	84.00	0.00	9999.00	-9.46	-0.19	314.65	0.00	0.01	9999.00	-0.195


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
Intact Stability Check -- PHASE 9
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10^-3
Roll Angle
0
8.5
17
25.5
34
42.5
51
59.5
68
76.5
85

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 9 ------  *
*                                                                                     *
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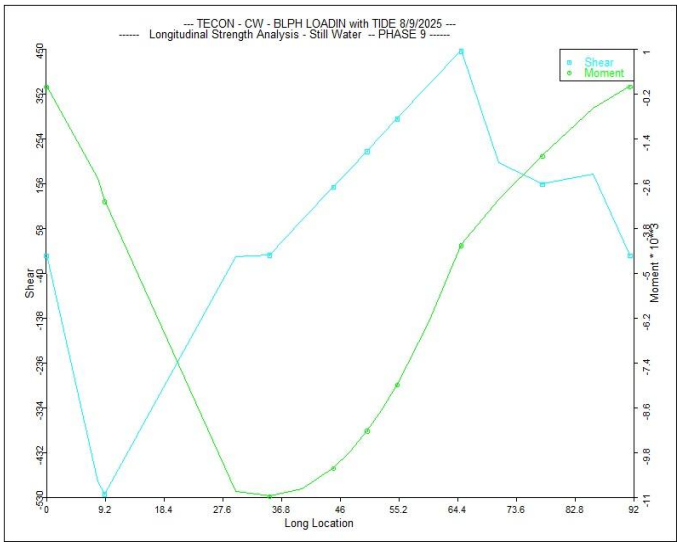
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 9: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-495	-2469	-0.0976	10.7395
9.14	-521	-3064	-0.1211	12.2405
29.72	-4	-10834	-0.4282	32.9528
35.00	0	-10960	-0.4331	35.3656
40.00	75	-10771	-0.4257	36.4109
45.00	150	-10208	-0.4034	36.2724
47.50	186	-9788	-0.3868	35.7768
50.29	227	-9211	-0.3640	34.9055
52.50	261	-8672	-0.3427	33.9913
55.00	298	-7973	-0.3151	32.7320
60.00	373	-6294	-0.2488	29.5767
65.00	447	-4245	-0.1678	25.7308
70.87	202	-3030	-0.1198	20.6112
77.72	155	-1849	-0.0731	14.0529
85.70	176	-599	-0.0237	5.9551
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 10 ---------                               *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 10: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                      Draft =     2.40 Roll Angle =     0.00 Pitch Angle =     0.00

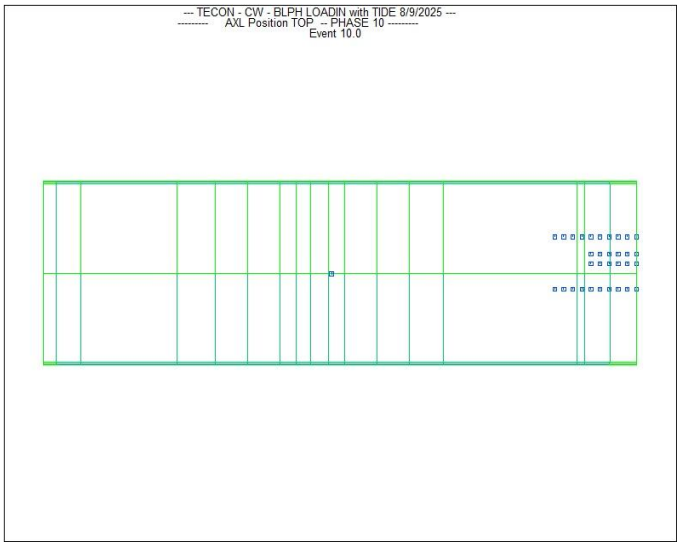
                                   Wet Radii Of Gyration About CG

                             K-X =     8.98 K-Y =    26.93 K-Z =    27.65

                                     GMT =    24.51 GML =   254.72

                             /-- Center of Gravity ---/  Sounding   % Full
                        Name  Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL10      ------------
                             LOAD_GRO    674.70     5.66    -1.46     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                          --- Contents ---
                          1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                          1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                          1SC          7.05     5.60     3.43     0.11     0.18     3.00
                          1SW          7.05     5.60    10.28     0.11     0.18     3.00
                          2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                          2PW        118.64    19.43   -10.26     0.42     0.83    13.58
                          2SC         26.21    19.43     3.43     0.09     0.18     3.00
                          2SW        101.46    19.43    10.25     0.36     0.71    11.61
                          3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                          3PW        346.12    40.01   -10.28     1.21     2.42    39.62
                          3SC         26.21    40.01     3.43     0.09     0.18     3.00
                          3SW        305.37    40.01    10.28     1.07     2.14    34.95
                          4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                          4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                          4SC         26.21    60.58     3.43     0.09     0.18     3.00
                          4SW        425.13    60.58    10.28     1.49     2.97    48.66
                          5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                          5PW        392.42    79.65   -10.28     1.72     3.27    49.45
                          5SC         14.53    83.89     3.43     0.10     0.18     3.00
                          5SW        374.95    79.59    10.28     1.65     3.14    47.25
                                  ========  ========  =======  =======  =======
                                  Total      5404.66    46.82    -0.00     3.27
                                  Buoyancy   5404.66    46.82     0.00     1.22
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 10 ---------                               *
*                                                                                                       *
*************************************************************************************************************

                              +++ D R A F T   M A R K   R E A D I N G S +++
                              ============================================

                    Process is 10: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.40 BOWST        2.40 MIDPO        2.40 MIDST        2.40 STEPO        2.40 STEST        2.40
```

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                                  ******************************************************
*                                              ***  MOSES   ***                                                  *
 *                                              ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                                   *
*          ---------     Intact Stability Check    -- PHASE 10 ---------                                       .*
*                                                                                                              *
****************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 10: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 5404.66, KG = 3.27, and Wind Speed = 10 Knots

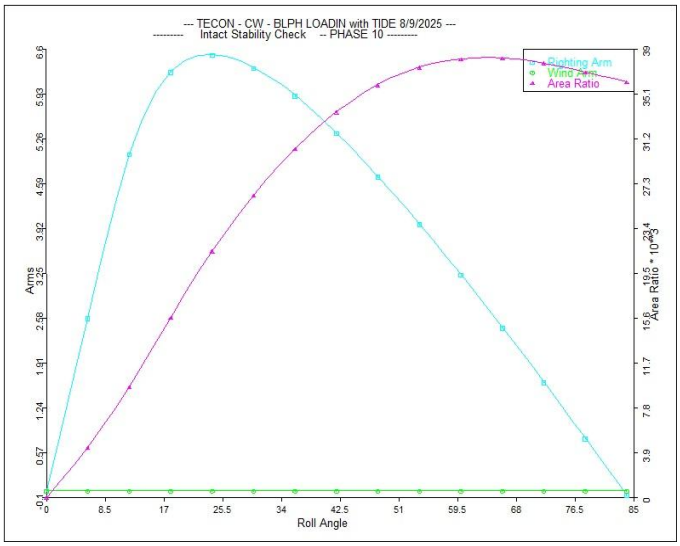
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.40	0.00	0.00	9999.00	4.30	-0.00	0.00	0.00	0.00	0.00	-0.000
2.40	2.00	0.00	9999.00	3.84	0.86	0.86	0.00	0.00	1376.64	0.857
2.39	4.00	0.00	9999.00	3.39	1.72	3.43	0.00	0.00	2799.82	1.716
2.37	6.00	0.00	9999.00	2.93	2.58	7.73	0.00	0.00	4320.97	2.580
2.35	8.00	0.00	9999.00	2.47	3.45	13.76	0.00	0.00	6001.66	3.448
2.32	10.00	0.00	9999.00	2.01	4.31	21.51	0.00	0.00	7779.49	4.311
2.27	12.00	0.00	9999.00	1.58	5.03	30.86	0.00	0.00	9612.89	5.032
2.17	14.00	0.00	9999.00	1.18	5.57	41.46	0.00	0.00	9999.00	5.568
2.04	16.00	0.00	9999.00	0.82	5.98	53.00	0.00	0.00	9999.00	5.976
1.89	18.00	0.00	9999.00	0.47	6.26	65.24	0.00	0.00	9999.00	6.261
1.73	20.00	0.00	9999.00	0.11	6.42	77.92	0.00	0.00	9999.00	6.422
1.58	22.00	0.00	9999.00	-0.24	6.50	90.84	0.00	0.00	9999.00	6.498
1.42	24.00	0.00	9999.00	-0.59	6.51	103.85	0.00	0.00	9999.00	6.513
1.26	26.00	0.00	9999.00	-0.94	6.48	116.85	0.00	0.01	9999.00	6.483
1.10	28.00	0.00	9999.00	-1.29	6.42	129.75	0.00	0.01	9999.00	6.416
0.94	30.00	0.00	9999.00	-1.64	6.32	142.49	0.00	0.01	9999.00	6.322
0.78	32.00	0.00	9999.00	-1.99	6.20	155.01	0.00	0.01	9999.00	6.203
0.61	34.00	0.00	9999.00	-2.33	6.06	167.28	0.00	0.01	9999.00	6.063
0.45	36.00	0.00	9999.00	-2.67	5.91	179.25	0.00	0.01	9999.00	5.905
0.29	38.00	0.00	9999.00	-3.01	5.73	190.88	0.00	0.01	9999.00	5.732
0.12	40.00	0.00	9999.00	-3.35	5.54	202.16	0.00	0.01	9999.00	5.545
-0.05	42.00	0.00	9999.00	-3.68	5.35	213.05	0.00	0.01	9999.00	5.345
-0.21	44.00	0.00	9999.00	-4.00	5.14	223.53	0.00	0.01	9999.00	5.135
-0.38	46.00	0.00	9999.00	-4.32	4.92	233.58	0.00	0.01	9999.00	4.918
-0.54	48.00	0.00	9999.00	-4.64	4.69	243.20	0.00	0.01	9999.00	4.694
-0.70	50.00	0.00	9999.00	-4.95	4.46	252.35	0.00	0.01	9999.00	4.463
-0.87	52.00	0.00	9999.00	-5.25	4.23	261.04	0.00	0.01	9999.00	4.226
-1.03	54.00	0.00	9999.00	-5.55	3.98	269.25	0.00	0.01	9999.00	3.984
-1.19	56.00	0.00	9999.00	-5.84	3.74	276.97	0.00	0.01	9999.00	3.737
-1.35	58.00	0.00	9999.00	-6.13	3.49	284.20	0.00	0.01	9999.00	3.486
-1.51	60.00	0.00	9999.00	-6.40	3.23	290.91	0.00	0.01	9999.00	3.230
-1.66	62.00	0.00	9999.00	-6.67	2.97	297.11	0.00	0.01	9999.00	2.970
-1.82	64.00	0.00	9999.00	-6.93	2.71	302.79	0.00	0.01	9999.00	2.707
-1.97	66.00	0.00	9999.00	-7.18	2.44	307.94	0.00	0.01	9999.00	2.440
-2.12	68.00	0.00	9999.00	-7.43	2.17	312.55	0.00	0.01	9999.00	2.171
-2.26	70.00	0.00	9999.00	-7.66	1.90	316.62	0.00	0.01	9999.00	1.898
-2.41	72.00	0.00	9999.00	-7.89	1.62	320.14	0.00	0.01	9999.00	1.623
-2.55	74.00	0.00	9999.00	-8.10	1.35	323.11	0.00	0.01	9999.00	1.345
-2.69	76.00	0.00	9999.00	-8.31	1.07	325.52	0.00	0.01	9999.00	1.066
-2.82	78.00	0.00	9999.00	-8.50	0.78	327.37	0.00	0.01	9999.00	0.785
-2.95	80.00	0.00	9999.00	-8.69	0.50	328.66	0.00	0.01	9999.00	0.503
-3.08	82.00	0.00	9999.00	-8.86	0.22	329.38	0.00	0.01	9999.00	0.222
-3.20	84.00	0.00	9999.00	-9.02	-0.06	329.54	0.00	0.01	9999.00	-0.060

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
Intact Stability Check -- PHASE 10
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
8.5
17
25.5
34
42.5
51
59.5
68
76.5
85

```
*******************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 10 ------  *
*                                                                                     *
***************************************************************************************************************
```

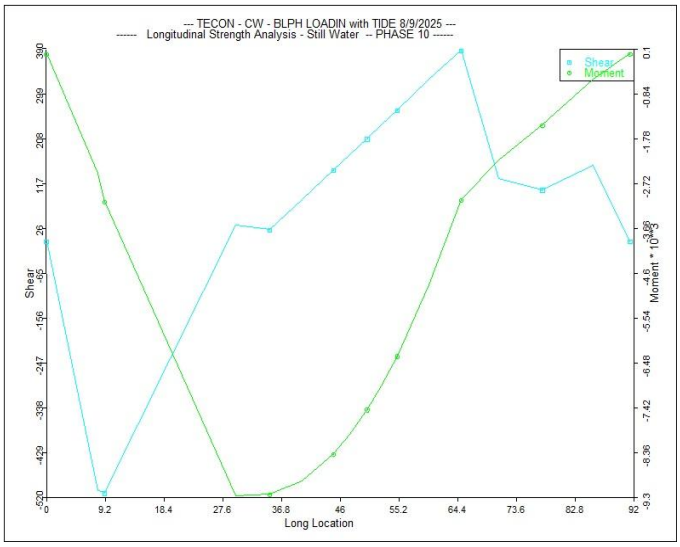
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 10: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-506	-2502	-0.0989	9.2613
9.14	-510	-3093	-0.1222	10.5505
29.72	32	-9266	-0.3662	27.8235
35.00	23	-9232	-0.3648	29.7007
40.00	85	-8962	-0.3542	30.4341
45.00	145	-8386	-0.3314	30.1822
47.50	175	-7986	-0.3156	29.7053
50.29	208	-7450	-0.2944	28.9134
52.50	236	-6960	-0.2751	28.1050
55.00	267	-6332	-0.2502	27.0097
60.00	328	-4846	-0.1915	24.3156
65.00	388	-3058	-0.1209	21.0901
70.87	127	-2237	-0.0885	16.8616
77.72	104	-1487	-0.0588	11.4936
85.70	153	-532	-0.0211	4.8741
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 11 ---------                               *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 11: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                      Draft =     2.29 Roll Angle =     0.00 Pitch Angle =     0.00

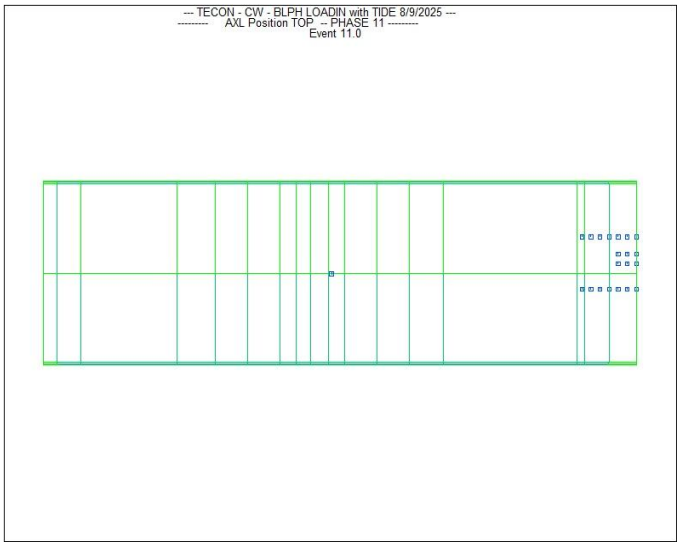
                                   Wet Radii Of Gyration About CG

                             K-X =     9.11 K-Y =    26.08 K-Z =    26.87

                                      GMT =    25.91 GML =   265.08

                             /-- Center of Gravity ---/  Sounding   % Full
                        Name  Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL11      ------------
                             LOAD_GRO    441.15     3.72    -1.41     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                          --- Contents ---
                          1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                          1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                          1SC          7.05     5.60     3.43     0.11     0.18     3.00
                          1SW          7.05     5.60    10.28     0.11     0.18     3.00
                          2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                          2PW        191.78    19.43   -10.27     0.67     1.34    21.95
                          2SC         26.21    19.43     3.43     0.09     0.18     3.00
                          2SW        156.99    19.43    10.26     0.55     1.10    17.97
                          3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                          3PW        346.12    40.01   -10.28     1.21     2.42    39.62
                          3SC         26.21    40.01     3.43     0.09     0.18     3.00
                          3SW        305.37    40.01    10.28     1.07     2.14    34.95
                          4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                          4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                          4SC         26.21    60.58     3.43     0.09     0.18     3.00
                          4SW        425.13    60.58    10.28     1.49     2.97    48.66
                          5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                          5PW        323.90    79.43   -10.28     1.44     2.76    40.82
                          5SC         14.53    83.89     3.43     0.10     0.18     3.00
                          5SW        288.82    79.32    10.28     1.30     2.49    36.39
                             ========  ========  =======  =======  =======
                             Total     5145.14    46.82     0.00     3.05
                             Buoyancy  5145.14    46.82    -0.00     1.16
```




```
                    ******************************************************
*                                       ***  MOSES   ***                                                  *
 *                                       -----------------                      23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 11 ---------                                 *
*                                                                                                        *
**********************************************************************************************************

                          +++ D R A F T   M A R K   R E A D I N G S +++
                          ============================================

                Process is 11: Units Are Degrees, Meters, and M-Tons Unless Specified

  Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
-------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

BOWPO        2.29 BOWST        2.29 MIDPO        2.29 MIDST        2.29 STEPO        2.29 STEST        2.29
```

```
**********************************************************
*                                    ***  MOSES   ***                                                    *
 *                                     ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 11 ---------                                 .*
*                                                                                                        *
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 11: Units Are Degrees, Meters, and M-Tons Unless Specified

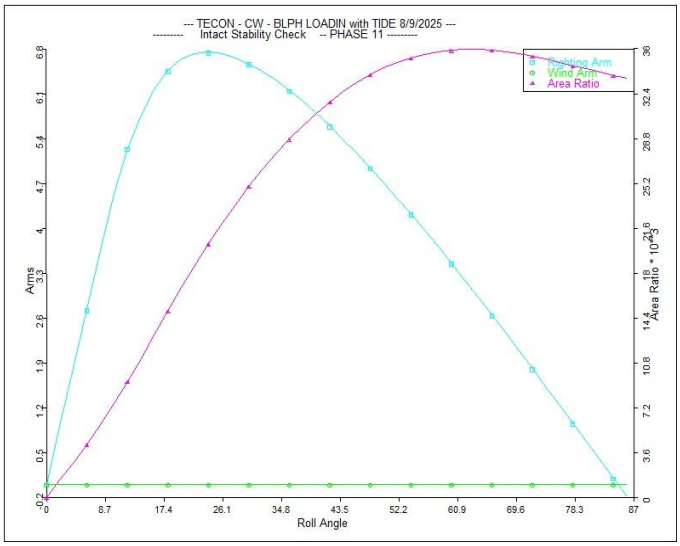
Moment Scaled By 5145.14, KG = 3.05, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.29	0.00	0.00	9999.00	4.41	0.00	0.00	0.00	0.00	0.00	-0.000
2.29	2.00	0.00	9999.00	3.95	0.91	0.91	0.00	0.00	1344.64	0.906
2.28	4.00	0.00	9999.00	3.50	1.81	3.63	0.00	0.00	2734.35	1.814
2.26	6.00	0.00	9999.00	3.04	2.73	8.17	0.00	0.00	4219.06	2.726
2.24	8.00	0.00	9999.00	2.58	3.64	14.54	0.00	0.00	5846.33	3.644
2.21	10.00	0.00	9999.00	2.12	4.54	22.72	0.00	0.00	7552.16	4.541
2.15	12.00	0.00	9999.00	1.70	5.25	32.51	0.00	0.00	9293.76	5.246
2.04	14.00	0.00	9999.00	1.31	5.77	43.52	0.00	0.00	9999.00	5.768
1.90	16.00	0.00	9999.00	0.95	6.17	55.46	0.00	0.00	9999.00	6.165
1.74	18.00	0.00	9999.00	0.62	6.46	68.08	0.00	0.00	9999.00	6.462
1.57	20.00	0.00	9999.00	0.28	6.64	81.18	0.00	0.00	9999.00	6.637
1.40	22.00	0.00	9999.00	-0.06	6.72	94.54	0.00	0.01	9999.00	6.723
1.22	24.00	0.00	9999.00	-0.39	6.75	108.01	0.00	0.01	9999.00	6.745
1.05	26.00	0.00	9999.00	-0.73	6.72	121.48	0.00	0.01	9999.00	6.720
0.87	28.00	0.00	9999.00	-1.06	6.66	134.86	0.00	0.01	9999.00	6.658
0.70	30.00	0.00	9999.00	-1.40	6.57	148.08	0.00	0.01	9999.00	6.566
0.52	32.00	0.00	9999.00	-1.73	6.45	161.09	0.00	0.01	9999.00	6.448
0.34	34.00	0.00	9999.00	-2.06	6.31	173.85	0.00	0.01	9999.00	6.310
0.16	36.00	0.00	9999.00	-2.39	6.15	186.32	0.00	0.01	9999.00	6.153
-0.01	38.00	0.00	9999.00	-2.71	5.98	198.45	0.00	0.01	9999.00	5.980
-0.19	40.00	0.00	9999.00	-3.03	5.79	210.22	0.00	0.01	9999.00	5.794
-0.37	42.00	0.00	9999.00	-3.35	5.60	221.61	0.00	0.01	9999.00	5.595
-0.55	44.00	0.00	9999.00	-3.66	5.39	232.59	0.00	0.01	9999.00	5.386
-0.73	46.00	0.00	9999.00	-3.97	5.17	243.15	0.00	0.01	9999.00	5.168
-0.90	48.00	0.00	9999.00	-4.28	4.94	253.26	0.00	0.01	9999.00	4.941
-1.08	50.00	0.00	9999.00	-4.58	4.71	262.90	0.00	0.01	9999.00	4.707
-1.25	52.00	0.00	9999.00	-4.87	4.47	272.08	0.00	0.01	9999.00	4.466
-1.42	54.00	0.00	9999.00	-5.16	4.22	280.77	0.00	0.01	9999.00	4.220
-1.59	56.00	0.00	9999.00	-5.44	3.97	288.96	0.00	0.01	9999.00	3.969
-1.76	58.00	0.00	9999.00	-5.71	3.71	296.64	0.00	0.01	9999.00	3.713
-1.93	60.00	0.00	9999.00	-5.98	3.45	303.80	0.00	0.01	9999.00	3.452
-2.09	62.00	0.00	9999.00	-6.24	3.19	310.44	0.00	0.01	9999.00	3.187
-2.26	64.00	0.00	9999.00	-6.49	2.92	316.55	0.00	0.01	9999.00	2.917
-2.41	66.00	0.00	9999.00	-6.74	2.64	322.11	0.00	0.01	9999.00	2.644
-2.57	68.00	0.00	9999.00	-6.98	2.37	327.12	0.00	0.01	9999.00	2.368
-2.72	70.00	0.00	9999.00	-7.20	2.09	331.58	0.00	0.01	9999.00	2.089
-2.87	72.00	0.00	9999.00	-7.42	1.81	335.47	0.00	0.01	9999.00	1.808
-3.02	74.00	0.00	9999.00	-7.63	1.53	338.81	0.00	0.01	9999.00	1.526
-3.16	76.00	0.00	9999.00	-7.83	1.24	341.57	0.00	0.01	9999.00	1.241
-3.30	78.00	0.00	9999.00	-8.03	0.96	343.77	0.00	0.01	9999.00	0.956
-3.43	80.00	0.00	9999.00	-8.21	0.67	345.40	0.00	0.01	9999.00	0.670
-3.56	82.00	0.00	9999.00	-8.38	0.38	346.45	0.00	0.01	9999.00	0.383
-3.69	84.00	0.00	9999.00	-8.54	0.10	346.93	0.00	0.01	9999.00	0.095
-3.81	86.00	0.00	9999.00	-8.69	-0.19	346.83	0.00	0.01	9999.00	-0.192


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
--------- Intact Stability Check -- PHASE 11 ---------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10^-3
Roll Angle
0
8.7
17.4
26.1
34.8
43.5
52.2
60.9
69.6
78.3
87

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 11 ------  *
*                                                                                     *
***************************************************************************************************************

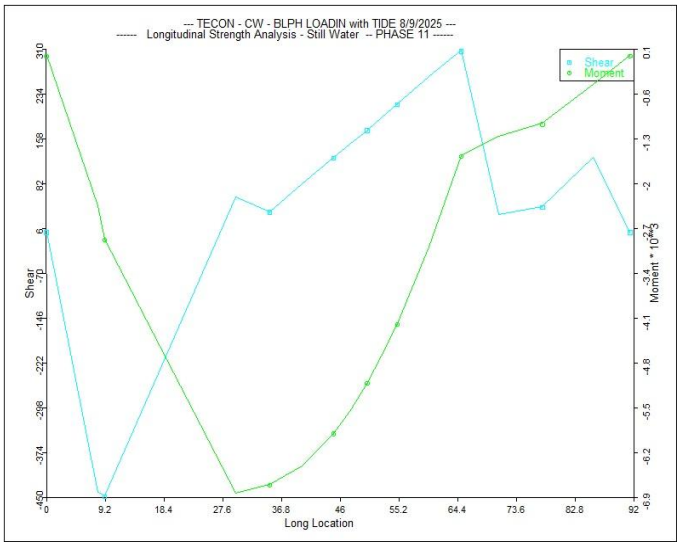
                    +++ L O N G I T U D I N A L   S T R E N G T H   R E S U L T S +++
                    ================================================================

                Process is 11: Units Are Degrees, Meters, and M-Tons Unless Specified

                                    Allowable Stress =     155.00 Mpa

                                  Allowable Deflection =       1.00 MM
```

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-440	-2350	-0.0929	6.9054
9.14	-447	-2866	-0.1133	7.8591
29.72	59	-6836	-0.2702	20.1492
35.00	34	-6701	-0.2648	21.3588
40.00	81	-6414	-0.2535	21.7460
45.00	126	-5897	-0.2331	21.4283
47.50	148	-5555	-0.2195	21.0218
50.29	173	-5106	-0.2018	20.3876
52.50	194	-4702	-0.1858	19.7610
55.00	217	-4189	-0.1656	18.9302
60.00	263	-2990	-0.1182	16.9382
65.00	307	-1565	-0.0619	14.6186
70.87	29	-1268	-0.0501	11.6585
77.72	43	-1063	-0.0421	7.9550
85.70	126	-457	-0.0181	3.3817
91.44	0	0	0.0000	0.0001



```
**************************************************
*                                  ***  MOSES   ***                                                  *
 *                                  ----------------                        23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                       *
*          ---------     Intact Stability Check    -- PHASE 12 ---------                           *
*                                                                                                   *
*************************************************************************************************

                    +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                    ====================================================================

                    Process is 12: Units Are Degrees, Meters, and M-Tons Unless Specified

                                   Results Are Reported In Body System

                        Draft =     2.07 Roll Angle =     0.00 Pitch Angle =     0.00

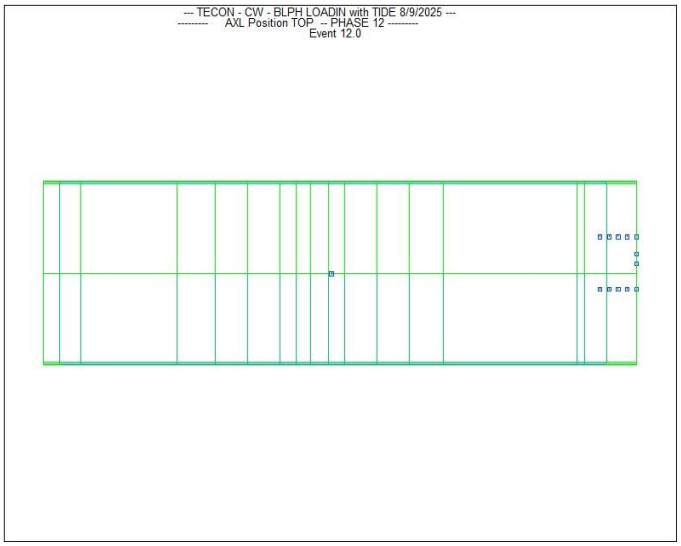
                                     Wet Radii Of Gyration About CG

                                K-X =     9.11 K-Y =    24.85 K-Z =    25.64

                                        GMT =    28.67 GML =   288.31

                                /-- Center of Gravity ---/  Sounding   % Full
                          Name   Weight    ---X---  ---Y---  ---Z---  -------- --------

                                ----------------  Part AXL12      ------------
                                LOAD_GRO    285.45     2.56    -1.33     7.10
                                ----------------  Part CF         ------------
                                LOAD_GRO     30.00    69.38    11.22     8.10
                                ----------------  Part GRI&SF-B   ------------
                                LOAD_GRO     75.00    30.86    -1.14     7.35
                                ----------------  Part GRI&SF-C   ------------
                                LOAD_GRO      0.50    67.44    11.22     7.10
                                ----------------  Part GRI&SF-T   ------------
                                LOAD_GRO     45.00    65.20    -2.92     7.40
                                ----------------  Part TP         ------------
                                LOAD_GRO    254.50    65.54    -2.14     9.35
                                ----------------  Part VERVECE    ------------
                                LOAD_GRO   1832.80    47.02     0.00     3.52
                                             --- Contents ---
                          1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                          1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                          1SC          7.05     5.60     3.43     0.11     0.18     3.00
                          1SW          7.05     5.60    10.28     0.11     0.18     3.00
                          2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                          2PW        152.40    19.43   -10.26     0.54     1.07    17.44
                          2SC         26.21    19.43     3.43     0.09     0.18     3.00
                          2SW        105.80    19.43    10.25     0.37     0.74    12.11
                          3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                          3PW        346.12    40.01   -10.28     1.21     2.42    39.62
                          3SC         26.21    40.01     3.43     0.09     0.18     3.00
                          3SW        305.37    40.01    10.28     1.07     2.14    34.95
                          4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                          4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                          4SC         26.21    60.58     3.43     0.09     0.18     3.00
                          4SW        425.13    60.58    10.28     1.49     2.97    48.66
                          5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                          5PW        196.15    79.00   -10.27     0.91     1.76    24.72
                          5SC         14.53    83.89     3.43     0.10     0.18     3.00
                          5SW        149.38    78.84    10.27     0.70     1.37    18.82
                                 ========  ========  =======  =======  =======
                                 Total      4631.68    46.83    -0.00     3.01
                                 Buoyancy   4631.67    46.83    -0.00     1.05
```




```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                        23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 12 ---------                               *
*                                                                                                       *
*****************************************************************************************************************

                              +++ D R A F T   M A R K   R E A D I N G S +++
                              ============================================

                    Process is 12: Units Are Degrees, Meters, and M-Tons Unless Specified

   Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
 -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

 BOWPO        2.07 BOWST        2.07 MIDPO        2.07 MIDST        2.07 STEPO        2.07 STEST        2.07
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                     ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 12 ---------                               .*
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 12: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 4631.68, KG = 3.01, and Wind Speed = 10 Knots

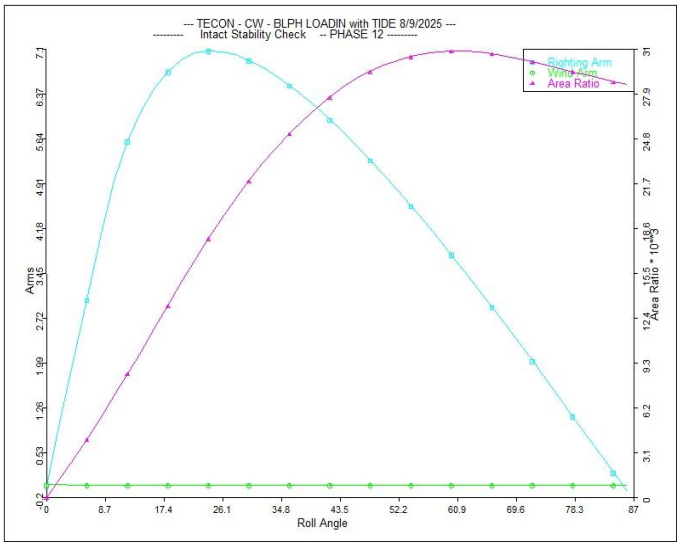
Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
2.07	0.00	0.00	9999.00	4.63	-0.00	0.00	0.00	0.00	0.00	-0.000
2.07	2.00	0.00	9999.00	4.17	1.00	1.00	0.00	0.00	1266.39	1.002
2.06	4.00	0.00	9999.00	3.71	2.01	4.01	0.00	0.00	2574.95	2.007
2.04	6.00	0.00	9999.00	3.26	3.02	9.04	0.00	0.00	3972.30	3.017
2.02	8.00	0.00	9999.00	2.80	4.03	16.08	0.00	0.00	5464.39	4.030
1.98	10.00	0.00	9999.00	2.35	4.94	25.06	0.00	0.00	6992.96	4.942
1.90	12.00	0.00	9999.00	1.95	5.60	35.60	0.00	0.00	8530.04	5.600
1.77	14.00	0.00	9999.00	1.58	6.08	47.28	0.00	0.00	9999.00	6.084
1.62	16.00	0.00	9999.00	1.24	6.45	59.82	0.00	0.01	9999.00	6.449
1.44	18.00	0.00	9999.00	0.92	6.73	72.99	0.00	0.01	9999.00	6.726
1.24	20.00	0.00	9999.00	0.61	6.93	86.64	0.00	0.01	9999.00	6.927
1.03	22.00	0.00	9999.00	0.30	7.03	100.61	0.00	0.01	9999.00	7.034
0.83	24.00	0.00	9999.00	-0.00	7.07	114.71	0.00	0.01	9999.00	7.071
0.63	26.00	0.00	9999.00	-0.31	7.06	128.84	0.00	0.01	9999.00	7.055
0.42	28.00	0.00	9999.00	-0.61	7.00	142.89	0.00	0.01	9999.00	7.000
0.21	30.00	0.00	9999.00	-0.92	6.91	156.81	0.00	0.01	9999.00	6.913
0.01	32.00	0.00	9999.00	-1.22	6.80	170.52	0.00	0.01	9999.00	6.800
-0.20	34.00	0.00	9999.00	-1.52	6.66	183.98	0.00	0.01	9999.00	6.664
-0.40	36.00	0.00	9999.00	-1.82	6.51	197.16	0.00	0.01	9999.00	6.509
-0.61	38.00	0.00	9999.00	-2.12	6.34	210.00	0.00	0.01	9999.00	6.337
-0.81	40.00	0.00	9999.00	-2.41	6.15	222.49	0.00	0.01	9999.00	6.151
-1.02	42.00	0.00	9999.00	-2.71	5.95	234.60	0.00	0.01	9999.00	5.951
-1.22	44.00	0.00	9999.00	-2.99	5.74	246.29	0.00	0.01	9999.00	5.740
-1.42	46.00	0.00	9999.00	-3.28	5.52	257.55	0.00	0.01	9999.00	5.519
-1.62	48.00	0.00	9999.00	-3.56	5.29	268.35	0.00	0.01	9999.00	5.288
-1.82	50.00	0.00	9999.00	-3.84	5.05	278.69	0.00	0.01	9999.00	5.049
-2.01	52.00	0.00	9999.00	-4.11	4.80	288.54	0.00	0.01	9999.00	4.802
-2.20	54.00	0.00	9999.00	-4.38	4.55	297.90	0.00	0.01	9999.00	4.549
-2.39	56.00	0.00	9999.00	-4.64	4.29	306.73	0.00	0.01	9999.00	4.288
-2.58	58.00	0.00	9999.00	-4.90	4.02	315.04	0.00	0.01	9999.00	4.022
-2.77	60.00	0.00	9999.00	-5.15	3.75	322.81	0.00	0.01	9999.00	3.749
-2.95	62.00	0.00	9999.00	-5.39	3.47	330.04	0.00	0.01	9999.00	3.471
-3.12	64.00	0.00	9999.00	-5.63	3.19	336.70	0.00	0.01	9999.00	3.189
-3.30	66.00	0.00	9999.00	-5.86	2.90	342.79	0.00	0.01	9999.00	2.902
-3.46	68.00	0.00	9999.00	-6.08	2.61	348.30	0.00	0.01	9999.00	2.611
-3.63	70.00	0.00	9999.00	-6.30	2.32	353.23	0.00	0.01	9999.00	2.317
-3.79	72.00	0.00	9999.00	-6.50	2.02	357.57	0.00	0.01	9999.00	2.020
-3.95	74.00	0.00	9999.00	-6.71	1.72	361.31	0.00	0.01	9999.00	1.721
-4.10	76.00	0.00	9999.00	-6.90	1.42	364.45	0.00	0.01	9999.00	1.419
-4.24	78.00	0.00	9999.00	-7.08	1.12	366.99	0.00	0.01	9999.00	1.116
-4.38	80.00	0.00	9999.00	-7.26	0.81	368.92	0.00	0.01	9999.00	0.812
-4.52	82.00	0.00	9999.00	-7.42	0.51	370.23	0.00	0.01	9999.00	0.507
-4.65	84.00	0.00	9999.00	-7.58	0.20	370.94	0.00	0.01	9999.00	0.202
-4.77	86.00	0.00	9999.00	-7.73	-0.10	371.04	0.00	0.01	9999.00	-0.104

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
--------- Intact Stability Check -- PHASE 12 ---------
Sighting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
8.7
17.4
26.1
34.8
43.5
52.2
60.9
69.6
78.3
87

```
**************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 12 ------  *
*                                                                                     *
***************************************************************************************************************

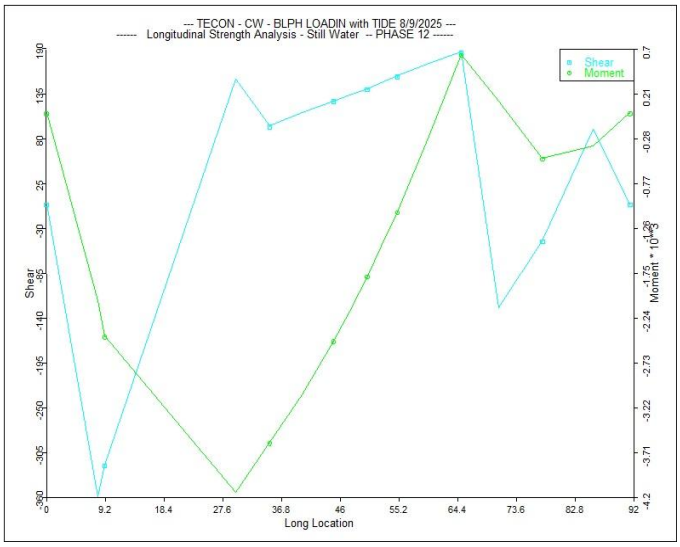
                    +++ L O N G I T U D I N A L   S T R E N G T H   R E S U L T S +++
                    ================================================================

                Process is 12: Units Are Degrees, Meters, and M-Tons Unless Specified

                                    Allowable Stress =     155.00 Mpa

                                  Allowable Deflection =       1.00 MM
```

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-358	-2050	-0.0811	3.9604
9.14	-320	-2439	-0.0964	4.4971
29.72	152	-4143	-0.1638	10.4647
35.00	95	-3601	-0.1423	10.7041
40.00	111	-3084	-0.1219	10.5223
45.00	126	-2489	-0.0984	10.0012
47.50	134	-2164	-0.0856	9.6334
50.29	141	-1781	-0.0704	9.1528
52.50	149	-1461	-0.0578	8.7286
55.00	157	-1079	-0.0427	8.2109
60.00	172	-257	-0.0102	7.0974
65.00	187	640	0.0253	5.9561
70.87	-127	124	0.0049	4.6813
77.72	-44	-495	-0.0196	3.2092
85.70	91	-359	-0.0142	1.3807
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 13 ---------                               *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 13: Units Are Degrees, Meters, and M-Tons Unless Specified

                                  Results Are Reported In Body System

                      Draft =     1.96 Roll Angle =     0.00 Pitch Angle =     0.00

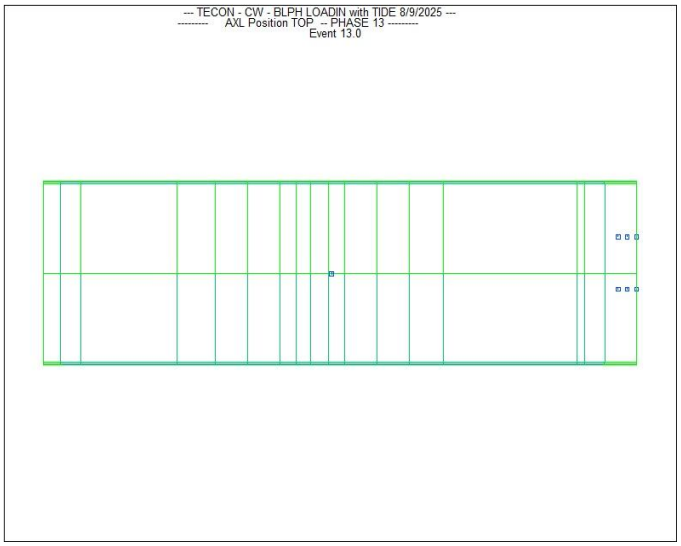
                                  Wet Radii Of Gyration About CG

                             K-X =     9.15 K-Y =    23.79 K-Z =    24.61

                                     GMT =    30.35 GML =   302.06

                             /-- Center of Gravity ---/  Sounding   % Full
                    Name      Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL13      ------------
                             LOAD_GRO    155.70     1.41    -1.24     7.10
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                        --- Contents ---
                      1PC          7.04     5.60    -3.43     0.11     0.18     3.00
                      1PW          7.05     5.60   -10.28     0.11     0.18     3.00
                      1SC          7.05     5.60     3.43     0.11     0.18     3.00
                      1SW          7.05     5.60    10.28     0.11     0.18     3.00
                      2PC         26.21    19.43    -3.43     0.09     0.18     3.00
                      2PW        169.18    19.43   -10.27     0.60     1.19    19.36
                      2SC         26.21    19.43     3.43     0.09     0.18     3.00
                      2SW        113.39    19.43    10.26     0.40     0.80    12.98
                      3PC         26.21    40.00    -3.43     0.09     0.18     3.00
                      3PW        346.12    40.01   -10.28     1.21     2.42    39.62
                      3SC         26.21    40.01     3.43     0.09     0.18     3.00
                      3SW        305.37    40.01    10.28     1.07     2.14    34.95
                      4PC         26.21    60.58    -3.43     0.09     0.18     3.00
                      4PW        213.34    60.58   -10.27     0.75     1.49    24.42
                      4SC         26.21    60.58     3.43     0.09     0.18     3.00
                      4SW        425.13    60.58    10.28     1.49     2.97    48.66
                      5PC         14.76    83.89    -3.43     0.10     0.18     3.00
                      5PW        125.12    78.75   -10.26     0.59     1.16    15.77
                      5SC         14.53    83.89     3.43     0.10     0.18     3.00
                      5SW         69.51    78.55    10.25     0.34     0.66     8.76
                             ========  ========  =======  =======  =======
                             Total      4375.39    46.83    -0.00     2.94
                             Buoyancy   4375.39    46.83    -0.00     0.99
```




```
                    ******************************************************
*                                       ***  MOSES   ***                                                  *
 *                                       -----------------                      23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 13 ---------                                 *
*                                                                                                        *
**********************************************************************************************************

                          +++ D R A F T   M A R K   R E A D I N G S +++
                          ============================================

                Process is 13: Units Are Degrees, Meters, and M-Tons Unless Specified

  Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
-------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

BOWPO        1.96 BOWST        1.96 MIDPO        1.96 MIDST        1.96 STEPO        1.96 STEST        1.96
```

```
                    ******************************************************
*                                      ***  MOSES   ***                                                    *
 *                                       ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 13 ---------                                 .*
*                                                                                                         *
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+++ R I G H T I N G A R M R E S U L T S +++

Process is 13: Units Are Degrees, Meters, and M-Tons Unless Specified

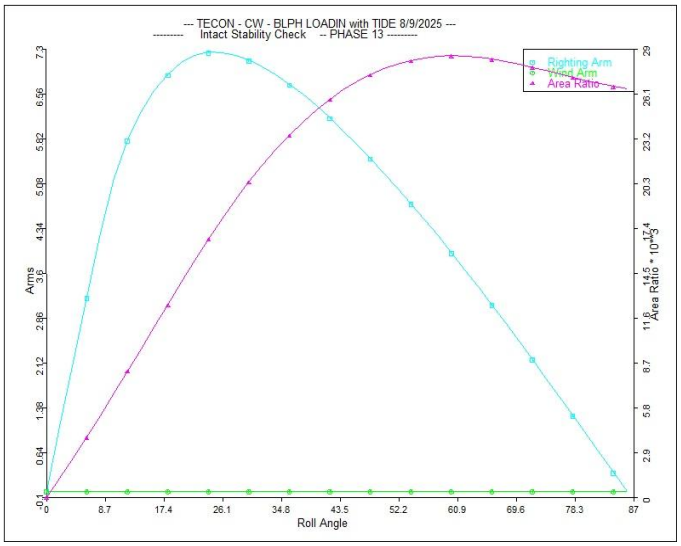
Moment Scaled By 4375.39, KG = 2.94, and Wind Speed = 10 Knots

Initial: Roll = 0.00, Trim = 0.00 Deg.

Critical NWT Down Flooding Point Is *BOWPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
1.96	0.00	0.00	9999.00	4.74	-0.00	0.00	0.00	0.00	0.00	-0.000
1.96	2.00	0.00	9999.00	4.28	1.06	1.06	0.00	0.00	1232.73	1.061
1.95	4.00	0.00	9999.00	3.82	2.13	4.25	0.00	0.00	2506.49	2.125
1.94	6.00	0.00	9999.00	3.37	3.19	9.57	0.00	0.00	3866.74	3.194
1.92	8.00	0.00	9999.00	2.91	4.26	17.02	0.00	0.00	5285.10	4.261
1.87	10.00	0.00	9999.00	2.47	5.16	26.44	0.00	0.00	6712.76	5.159
1.77	12.00	0.00	9999.00	2.08	5.79	37.39	0.00	0.00	8148.26	5.794
1.63	14.00	0.00	9999.00	1.72	6.26	49.45	0.00	0.01	9576.21	6.260
1.47	16.00	0.00	9999.00	1.38	6.61	62.32	0.00	0.01	9999.00	6.611
1.28	18.00	0.00	9999.00	1.07	6.88	75.81	0.00	0.01	9999.00	6.876
1.07	20.00	0.00	9999.00	0.77	7.08	89.76	0.00	0.01	9999.00	7.076
0.85	22.00	0.00	9999.00	0.49	7.20	104.03	0.00	0.01	9999.00	7.198
0.63	24.00	0.00	9999.00	0.20	7.25	118.48	0.00	0.01	9999.00	7.246
0.41	26.00	0.00	9999.00	-0.10	7.24	132.97	0.00	0.01	9999.00	7.241
0.19	28.00	0.00	9999.00	-0.39	7.19	147.40	0.00	0.01	9999.00	7.193
-0.03	30.00	0.00	9999.00	-0.67	7.11	161.71	0.00	0.01	9999.00	7.112
-0.25	32.00	0.00	9999.00	-0.96	7.00	175.82	0.00	0.01	9999.00	7.003
-0.47	34.00	0.00	9999.00	-1.25	6.87	189.69	0.00	0.01	9999.00	6.870
-0.69	36.00	0.00	9999.00	-1.54	6.72	203.28	0.00	0.01	9999.00	6.717
-0.91	38.00	0.00	9999.00	-1.82	6.55	216.54	0.00	0.01	9999.00	6.546
-1.12	40.00	0.00	9999.00	-2.10	6.36	229.45	0.00	0.01	9999.00	6.360
-1.34	42.00	0.00	9999.00	-2.38	6.16	241.97	0.00	0.01	9999.00	6.160
-1.55	44.00	0.00	9999.00	-2.66	5.95	254.08	0.00	0.01	9999.00	5.948
-1.77	46.00	0.00	9999.00	-2.93	5.73	265.75	0.00	0.01	9999.00	5.725
-1.98	48.00	0.00	9999.00	-3.20	5.49	276.97	0.00	0.01	9999.00	5.493
-2.19	50.00	0.00	9999.00	-3.47	5.25	287.72	0.00	0.01	9999.00	5.252
-2.39	52.00	0.00	9999.00	-3.73	5.00	297.97	0.00	0.01	9999.00	5.002
-2.59	54.00	0.00	9999.00	-3.99	4.75	307.72	0.00	0.01	9999.00	4.746
-2.79	56.00	0.00	9999.00	-4.24	4.48	316.95	0.00	0.01	9999.00	4.482
-2.99	58.00	0.00	9999.00	-4.49	4.21	325.64	0.00	0.01	9999.00	4.213
-3.18	60.00	0.00	9999.00	-4.73	3.94	333.79	0.00	0.01	9999.00	3.937
-3.37	62.00	0.00	9999.00	-4.96	3.66	341.38	0.00	0.01	9999.00	3.655
-3.56	64.00	0.00	9999.00	-5.19	3.37	348.41	0.00	0.01	9999.00	3.368
-3.74	66.00	0.00	9999.00	-5.42	3.08	354.85	0.00	0.01	9999.00	3.077
-3.91	68.00	0.00	9999.00	-5.63	2.78	360.71	0.00	0.01	9999.00	2.780
-4.08	70.00	0.00	9999.00	-5.84	2.48	365.97	0.00	0.01	9999.00	2.480
-4.25	72.00	0.00	9999.00	-6.05	2.18	370.63	0.00	0.01	9999.00	2.177
-4.41	74.00	0.00	9999.00	-6.24	1.87	374.67	0.00	0.01	9999.00	1.870
-4.56	76.00	0.00	9999.00	-6.43	1.56	378.10	0.00	0.01	9999.00	1.561
-4.71	78.00	0.00	9999.00	-6.61	1.25	380.91	0.00	0.01	9999.00	1.249
-4.86	80.00	0.00	9999.00	-6.78	0.94	383.10	0.00	0.01	9999.00	0.936
-5.00	82.00	0.00	9999.00	-6.95	0.62	384.66	0.00	0.01	9999.00	0.623
-5.13	84.00	0.00	9999.00	-7.10	0.31	385.59	0.00	0.01	9999.00	0.308
-5.25	86.00	0.00	9999.00	-7.25	-0.01	385.89	0.00	0.01	9999.00	-0.007


--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
--------- Intact Stability Check -- PHASE 13 ---------
Righting Arm
Wind Arm
Area Ratio
Arm/s
Area Ratio * 10**-3
Roll Angle
0
8.7
17.4
26.1
34.8
43.5
52.2
60.9
69.6
78.3
87

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 13 ------  *
*                                                                                     *
***************************************************************************************************************
```

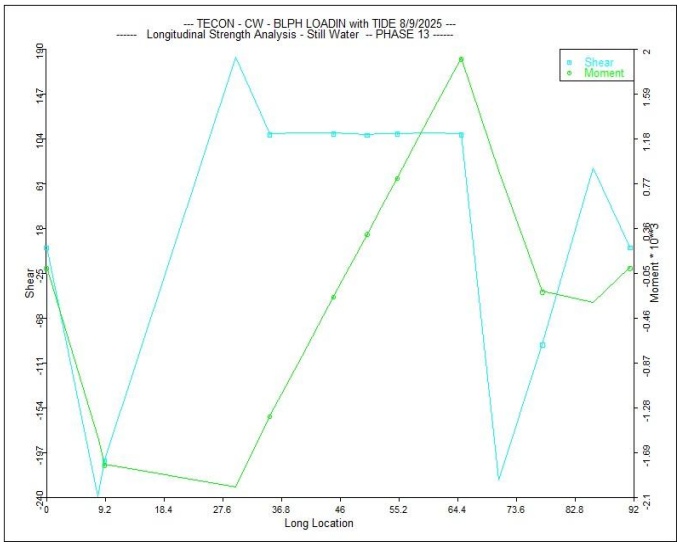
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 13: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-238	-1547	-0.0612	1.7218
9.14	-203	-1801	-0.0712	1.9448
29.72	182	-2008	-0.0794	3.5022
35.00	108	-1354	-0.0535	3.1712
40.00	109	-809	-0.0320	2.7032
45.00	109	-262	-0.0104	2.1460
47.50	109	9	0.0003	1.8526
50.29	108	311	0.0123	1.5258
52.50	109	550	0.0217	1.2743
55.00	109	822	0.0325	1.0042
60.00	109	1368	0.0541	0.5393
65.00	108	1913	0.0756	0.2253
70.87	-223	887	0.0350	0.0956
77.72	-92	-216	-0.0086	0.1052
85.70	76	-316	-0.0125	0.0749
91.44	0	0	0.0000	0.0001



```
                    ******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                    ----------------                                  23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                           *
*          ---------     Intact Stability Check    -- PHASE 14 ---------                                *
*                                                                                                       *
*************************************************************************************************************

                  +++ B U O Y A N C Y   A N D   W E I G H T   F O R   V E R V E C E +++
                  ======================================================================

                  Process is 14: Units Are Degrees, Meters, and M-Tons Unless Specified

                                 Results Are Reported In Body System

                      Draft =     1.83 Roll Angle =     0.08 Pitch Angle =     0.03

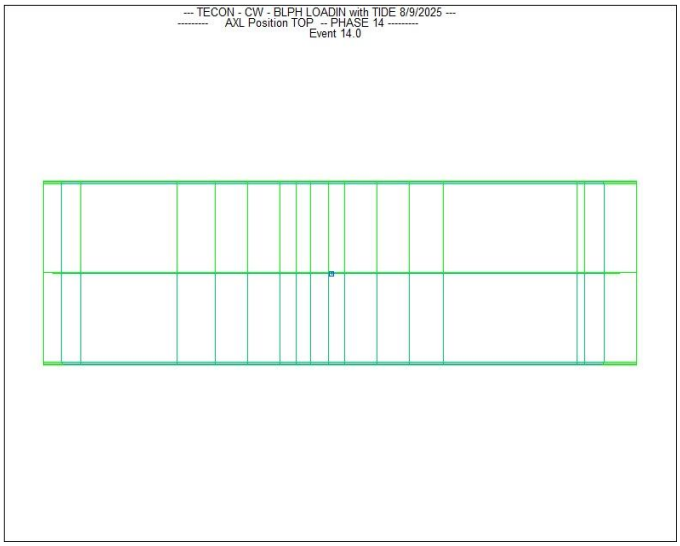
                                   Wet Radii Of Gyration About CG

                             K-X =     9.22 K-Y =    22.28 K-Z =    23.18

                                     GMT =    32.32 GML =   317.35

                             /-- Center of Gravity ---/  Sounding   % Full
                        Name  Weight    ---X---  ---Y---  ---Z---  -------- --------

                             ----------------  Part AXL14      ------------
                             ----------------  Part CF         ------------
                             LOAD_GRO     30.00    69.38    11.22     8.10
                             ----------------  Part GRI&SF-B   ------------
                             LOAD_GRO     75.00    30.86    -1.14     7.35
                             ----------------  Part GRI&SF-C   ------------
                             LOAD_GRO      0.50    67.44    11.22     7.10
                             ----------------  Part GRI&SF-T   ------------
                             LOAD_GRO     45.00    65.20    -2.92     7.40
                             ----------------  Part TP         ------------
                             LOAD_GRO    254.50    65.54    -2.14     9.35
                             ----------------  Part VERVECE    ------------
                             LOAD_GRO   1832.80    47.02     0.00     3.52
                                           --- Contents ---
                          1PC           7.04     5.60    -3.43     0.11     0.18     3.00
                          1PW           7.05     5.60   -10.28     0.11     0.18     3.00
                          1SC           7.05     5.60     3.43     0.11     0.18     3.00
                          1SW           7.05     5.60    10.28     0.11     0.18     3.00
                          2PC          26.21    19.43    -3.43     0.09     0.18     3.00
                          2PW         249.24    19.44   -10.28     0.87     1.74    28.53
                          2SC          26.21    19.43     3.43     0.09     0.18     3.00
                          2SW          99.94    19.46    10.24     0.35     0.71    11.44
                          3PC          26.21    40.00    -3.43     0.09     0.18     3.00
                          3PW         346.12    40.01   -10.28     1.21     2.41    39.62
                          3SC          26.21    40.01     3.43     0.09     0.18     3.00
                          3SW         305.37    40.01    10.27     1.07     2.14    34.95
                          4PC          26.21    60.58    -3.43     0.09     0.18     3.00
                          4PW         213.34    60.59   -10.27     0.75     1.49    24.42
                          4SC          26.21    60.58     3.43     0.09     0.18     3.00
                          4SW         425.13    60.58    10.28     1.49     2.98    48.66
                          5PC          14.76    83.89    -3.43     0.10     0.18     3.00
                          5PW          23.81    80.40   -10.28     0.10     0.18     3.00
                          5SC          14.53    83.89     3.43     0.10     0.18     3.00
                          5SW          23.81    80.40    10.28     0.10     0.18     3.00
                             ========  ========  =======  =======  =======
                             Total      4139.29    46.99    -0.05     2.85
                             Buoyancy   4139.29    46.99    -0.05     0.94
```




```
                    ******************************************************
*                                       ***  MOSES   ***                                                  *
 *                                       -----------------                      23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                            *
*          ---------     Intact Stability Check    -- PHASE 14 ---------                                 *
*                                                                                                        *
**********************************************************************************************************

                          +++ D R A F T   M A R K   R E A D I N G S +++
                          ============================================

                Process is 14: Units Are Degrees, Meters, and M-Tons Unless Specified

  Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft    Name     Draft
-------- -------- -------- -------- -------- -------- -------- -------- -------- -------- -------- --------

BOWPO        1.85 BOWST        1.81 MIDPO        1.88 MIDST        1.84 STEPO        1.90 STEST        1.86
```

```
*******************************************************
*                                    ***  MOSES   ***                                                    *
 *                                     ----------------                          23 August, 2025    *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                                          *
*          ---------     Intact Stability Check    -- PHASE 14 ---------                               .*
*                                                                                                       *
*************************************************************************************************************
```

+++ R I G H T I N G A R M R E S U L T S +++

Process is 14: Units Are Degrees, Meters, and M-Tons Unless Specified

Moment Scaled By 4139.29, KG = 2.85, and Wind Speed = 10 Knots

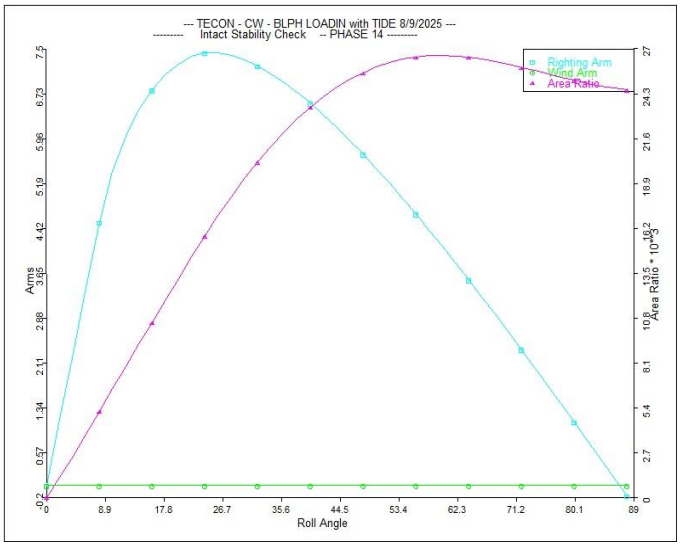
Initial: Roll = 0.08, Trim = 0.03 Deg.

Critical NWT Down Flooding Point Is *STEPTWT

Arms About Axis Yawed 0.0 Deg From Vessel X

/----- Condition -----/			/-- Min. Height --/		/--- Righting ---/		/--- Heeling ---/		Area	Net
Draft	Roll	Trim	W Tight	NW Tight	Arm	Area	Arm	Area	Ratio	Arm
1.83	0.00	0.00	9999.00	4.80	-0.00	0.00	0.00	0.00	0.00	-0.000
1.83	2.00	0.00	9999.00	4.34	1.13	1.13	0.00	0.00	1212.49	1.129
1.82	4.00	0.00	9999.00	3.89	2.26	4.52	0.00	0.00	2467.25	2.262
1.81	6.00	0.00	9999.00	3.43	3.40	10.19	0.00	0.00	3806.78	3.400
1.79	8.00	0.00	9999.00	2.97	4.52	18.11	0.00	0.00	5180.72	4.521
1.73	10.00	0.00	9999.00	2.55	5.39	28.02	0.00	0.00	6537.00	5.387
1.62	12.00	0.00	9999.00	2.17	6.00	39.41	0.00	0.00	7887.90	6.000
1.47	14.00	0.00	9999.00	1.82	6.45	51.86	0.00	0.01	9214.28	6.451
1.30	16.00	0.00	9999.00	1.49	6.79	65.10	0.00	0.01	9999.00	6.790
1.10	18.00	0.00	9999.00	1.18	7.05	78.94	0.00	0.01	9999.00	7.047
0.89	20.00	0.00	9999.00	0.90	7.24	93.23	0.00	0.01	9999.00	7.240
0.66	22.00	0.00	9999.00	0.62	7.37	107.84	0.00	0.01	9999.00	7.374
0.42	24.00	0.00	9999.00	0.34	7.43	122.65	0.00	0.01	9999.00	7.433
0.19	26.00	0.00	9999.00	0.07	7.44	137.52	0.00	0.01	9999.00	7.435
-0.04	28.00	0.00	9999.00	-0.21	7.39	152.35	0.00	0.01	9999.00	7.393
-0.28	30.00	0.00	9999.00	-0.48	7.31	167.05	0.00	0.01	9999.00	7.315
-0.51	32.00	0.00	9999.00	-0.76	7.21	181.58	0.00	0.01	9999.00	7.208
-0.74	34.00	0.00	9999.00	-1.03	7.08	195.86	0.00	0.01	9999.00	7.076
-0.98	36.00	0.00	9999.00	-1.31	6.92	209.86	0.00	0.01	9999.00	6.923
-1.21	38.00	0.00	9999.00	-1.58	6.75	223.54	0.00	0.01	9999.00	6.752
-1.44	40.00	0.00	9999.00	-1.85	6.56	236.85	0.00	0.01	9999.00	6.565
-1.66	42.00	0.00	9999.00	-2.11	6.36	249.78	0.00	0.01	9999.00	6.363
-1.89	44.00	0.00	9999.00	-2.38	6.15	262.29	0.00	0.01	9999.00	6.149
-2.11	46.00	0.00	9999.00	-2.64	5.92	274.37	0.00	0.01	9999.00	5.924
-2.33	48.00	0.00	9999.00	-2.90	5.69	285.98	0.00	0.01	9999.00	5.688
-2.55	50.00	0.00	9999.00	-3.15	5.44	297.11	0.00	0.01	9999.00	5.444
-2.76	52.00	0.00	9999.00	-3.40	5.19	307.75	0.00	0.01	9999.00	5.191
-2.97	54.00	0.00	9999.00	-3.65	4.93	317.87	0.00	0.01	9999.00	4.930
-3.18	56.00	0.00	9999.00	-3.89	4.66	327.46	0.00	0.01	9999.00	4.663
-3.39	58.00	0.00	9999.00	-4.13	4.39	336.51	0.00	0.01	9999.00	4.389
-3.59	60.00	0.00	9999.00	-4.36	4.11	345.01	0.00	0.01	9999.00	4.109
-3.78	62.00	0.00	9999.00	-4.59	3.82	352.95	0.00	0.01	9999.00	3.824
-3.97	64.00	0.00	9999.00	-4.81	3.53	360.30	0.00	0.01	9999.00	3.535
-4.16	66.00	0.00	9999.00	-5.03	3.24	367.08	0.00	0.01	9999.00	3.241
-4.34	68.00	0.00	9999.00	-5.24	2.94	373.26	0.00	0.01	9999.00	2.943
-4.51	70.00	0.00	9999.00	-5.44	2.64	378.85	0.00	0.01	9999.00	2.641
-4.68	72.00	0.00	9999.00	-5.64	2.34	383.82	0.00	0.01	9999.00	2.336
-4.85	74.00	0.00	9999.00	-5.83	2.03	388.19	0.00	0.02	9999.00	2.028
-5.01	76.00	0.00	9999.00	-6.01	1.72	391.93	0.00	0.02	9999.00	1.717
-5.16	78.00	0.00	9999.00	-6.19	1.40	395.06	0.00	0.02	9999.00	1.404
-5.30	80.00	0.00	9999.00	-6.36	1.09	397.55	0.00	0.02	9999.00	1.089
-5.44	82.00	0.00	9999.00	-6.52	0.77	399.41	0.00	0.02	9999.00	0.773
-5.58	84.00	0.00	9999.00	-6.67	0.46	400.64	0.00	0.02	9999.00	0.457
-5.70	86.00	0.00	9999.00	-6.81	0.14	401.24	0.00	0.02	9999.00	0.140
-5.82	88.00	0.00	9999.00	-6.95	-0.18	401.20	0.00	0.02	9999.00	-0.178

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--- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---
--------- Intact Stability Check -- PHASE 14 ---------
Righting Arm
Wind Arm
Area Ratio
Arms
Area Ratio * 10**3
Roll Angle
0
8.9
17.8
26.7
35.6
44.5
53.4
62.3
71.2
80.1
89

```
**********************************************************
*                                  ***  MOSES   ***                                  *
 *                                  ----------------                    23 August, 2025   *
*          --- TECON - CW - BLPH LOADIN with TIDE 8/9/2025 ---                        *
*          ------   Longitudinal Strength Analysis - Still Water  -- PHASE 14 ------  *
*                                                                                     *
***************************************************************************************************************
```

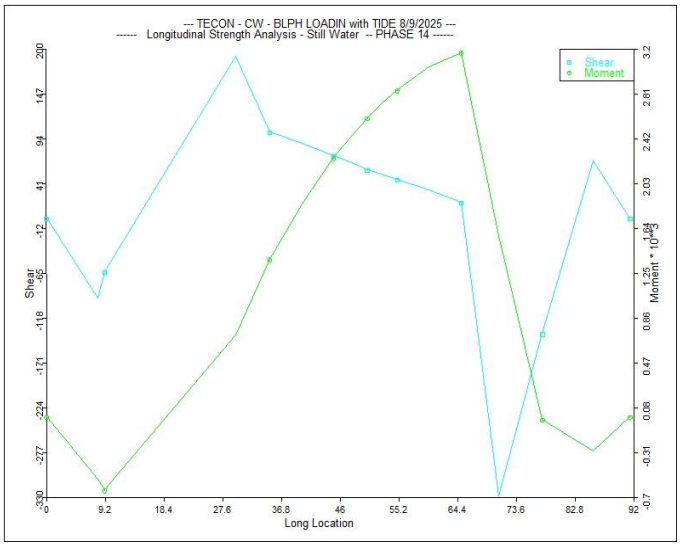
+++ L O N G I T U D I N A L S T R E N G T H R E S U L T S +++

Process is 14: Units Are Degrees, Meters, and M-Tons Unless Specified

Allowable Stress = 155.00 Mpa

Allowable Deflection = 1.00 MM

Longitudinal Location	Shear Force	Bending Moment	B. Stress/ Allowable	Deflection/ Allowable
0.00	0	0	0.0000	0.0000
8.00	-93	-546	-0.0216	-1.1150
9.14	-62	-636	-0.0252	-1.2823
29.72	191	710	0.0281	-4.9055
35.00	102	1372	0.0542	-5.8172
40.00	88	1848	0.0730	-6.5265
45.00	74	2253	0.0890	-7.0327
47.50	66	2428	0.0959	-7.1955
50.29	57	2600	0.1027	-7.2979
52.50	52	2721	0.1075	-7.3161
55.00	46	2843	0.1123	-7.2659
60.00	33	3040	0.1201	-6.9276
65.00	19	3169	0.1252	-6.2549
70.87	-327	1573	0.0622	-5.0551
77.72	-136	-20	-0.0008	-3.3621
85.70	68	-298	-0.0118	-1.3797
91.44	0	0	0.0000	0.0000



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ATTACHMENT P – SAFETY CHECKLIST

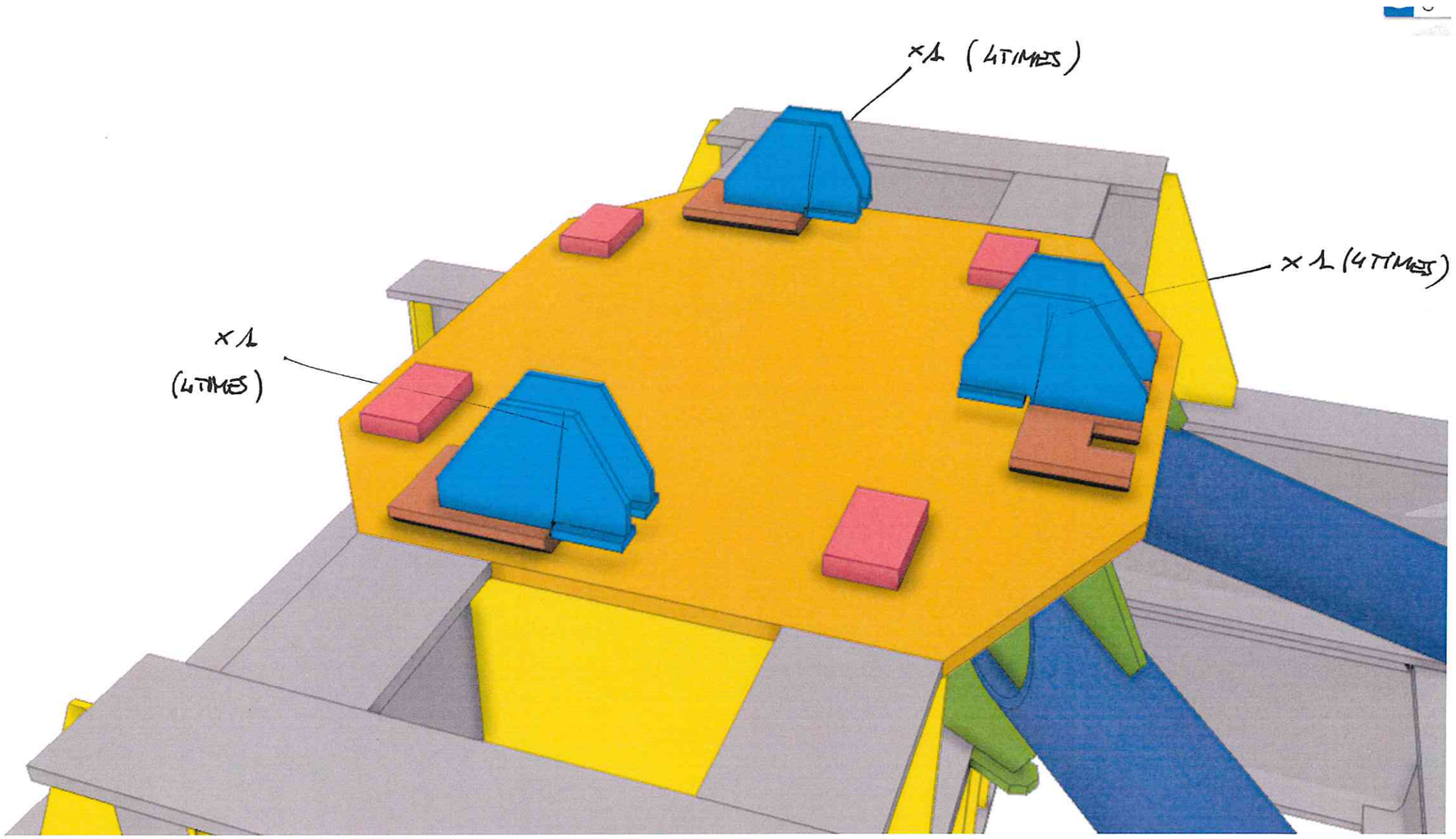
HOLD

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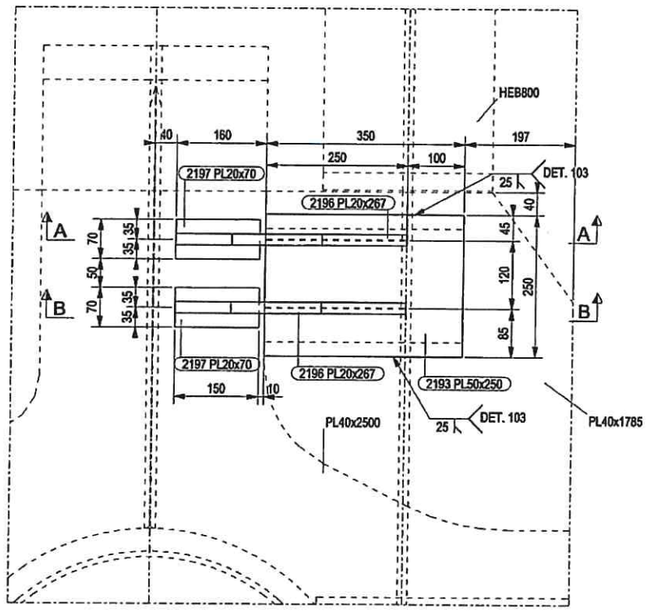
ATTACHMENT Q – MIN SF / GRILLAGE DISCONNECTION

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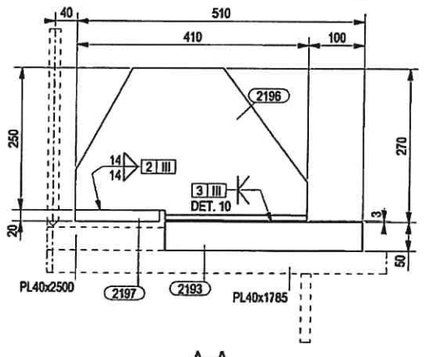
STRENGTHENING BUFF "CUT LINES"



MARK	POS.	Q.TY	DENOMINATION	LENGTH (mm)	MATERIAL GRADE	STR. CAT.	WEIGHT (Kg)	P. SURF. (m^2)	NOTES
CWGS017	2193	1	PL50x250	350	S355MLO	3	32.6	0.22	
CWGS017	2196	2	PL20x267	410	S355MLO	3	25.7	0.37	
CWGS017	2197	2	PL20x70	150	S355MLO	3	3.3	0.06	
CWGS018	2193	1	PL50x250	350	S355MLO	3	32.6	0.22	
CWGS018	2196	2	PL20x267	410	S355MLO	3	25.7	0.37	
CWGS018	2197	2	PL20x70	150	S355MLO	3	3.3	0.06	
CWGS023	2193	1	PL50x250	350	S355MLO	3	32.6	0.22	
CWGS023	2196	2	PL20x267	410	S355MLO	3	25.7	0.37	
CWGS023	2197	2	PL20x70	150	S355MLO	3	3.3	0.06	
CWGS024	2193	1	PL50x250	350	S355MLO	3	32.6	0.22	
CWGS024	2196	2	PL20x267	410	S355MLO	3	25.7	0.37	
CWGS024	2197	2	PL20x70	150	S355MLO	3	3.3	0.06	
						TOTALE	246.4	2.62	



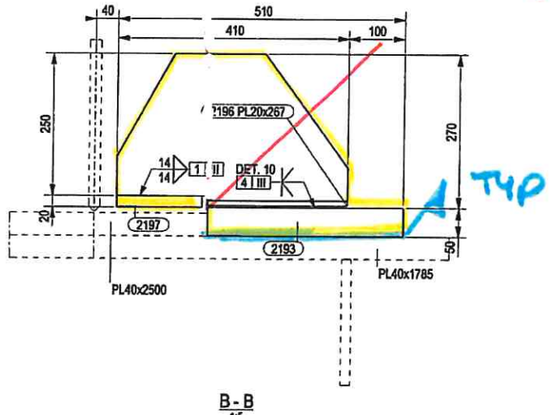
CWGS017 CWGS018
CWGS023 CWGS024



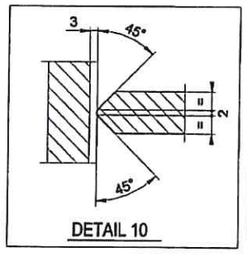
A - A
1:5

CUTLINES 3 TIMES × EACH NODES (4)

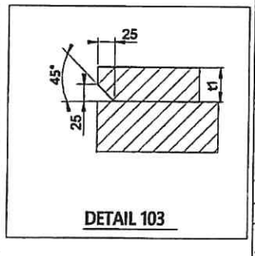
TOTAL => 12 TIMES



B - B
1:5



DETAIL 10

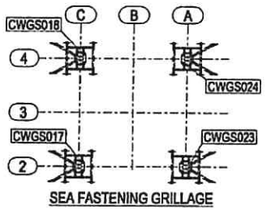


DETAIL 103

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.

KEY PLAN



SEA FASTENING GRILLAGE

HOLDS

REFERENCE DRAWINGS

DWG No.	DESCRIPTION
123A90-DDL-TI-DD-99024	TOPSIDE SEAFASTENING - ASSEMBLY
123A90-DDL-TI-DD-99025-002	TOPSIDE SEAFASTENING - DETAILS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	06/03/2025	CM-TS	MR	DC	ISSUED FOR CONSTRUCTION

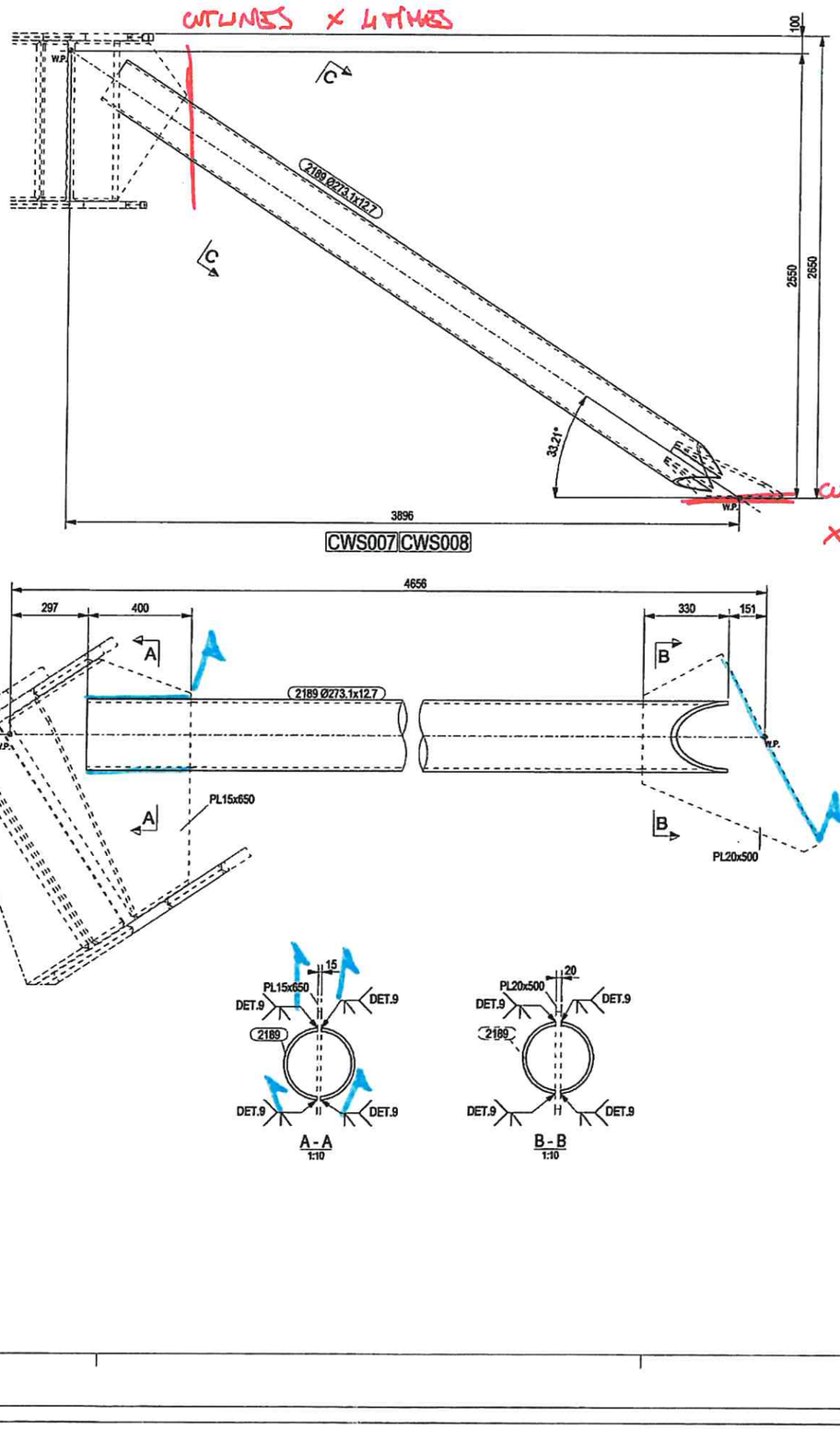
CROSSWIND | ROSETTI MARINO

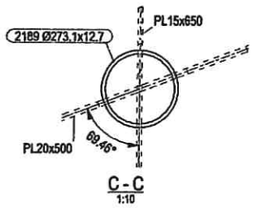
TITLE :
BASE LOAD POWER HUB (BLPH)
TOPSIDE SEA FASTENING GRILLAGE
MARK CWGS017 – CWGS018 – CWGS023 – CWGS024

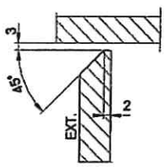
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:5
DRAWN CM-TS	CHECKED M.ROSSI	APPROVED D.CASADIO	DATE 06/03/2025
A1	DRAWING NO. 123A90-FDL-ST-DD-90830	SHEET 001	REV. 0

Transtion Piece 1/2

MARK	POS.	Q.TY	DENOMINATION	LENGTH (mm)	MATERIAL GRADE	STR. CAT.	WEIGHT (Kg)	P. SURF. (m^2)	NOTES
CWS007	2189	1	Ø273.1x12.7	4203	API5LX52	3	328.6	3.50	
CWS008	2189	1	Ø273.1x12.7	4203	API5LX52	3	328.6	3.50	
						TOTALE	657.2	7.01	





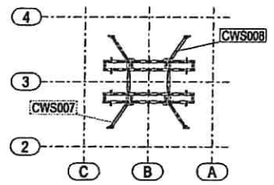


DETAIL 9

NOTES

1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.

KEY PLAN



UPPER GRILLAGE

HOLDS

REFERENCE DRAWINGS

DWG No.	DESCRIPTION
123A90-DDL-TI-DD-99041-001/002	TP - SEAFASTENING - ASSEMBLY AND DETAILS

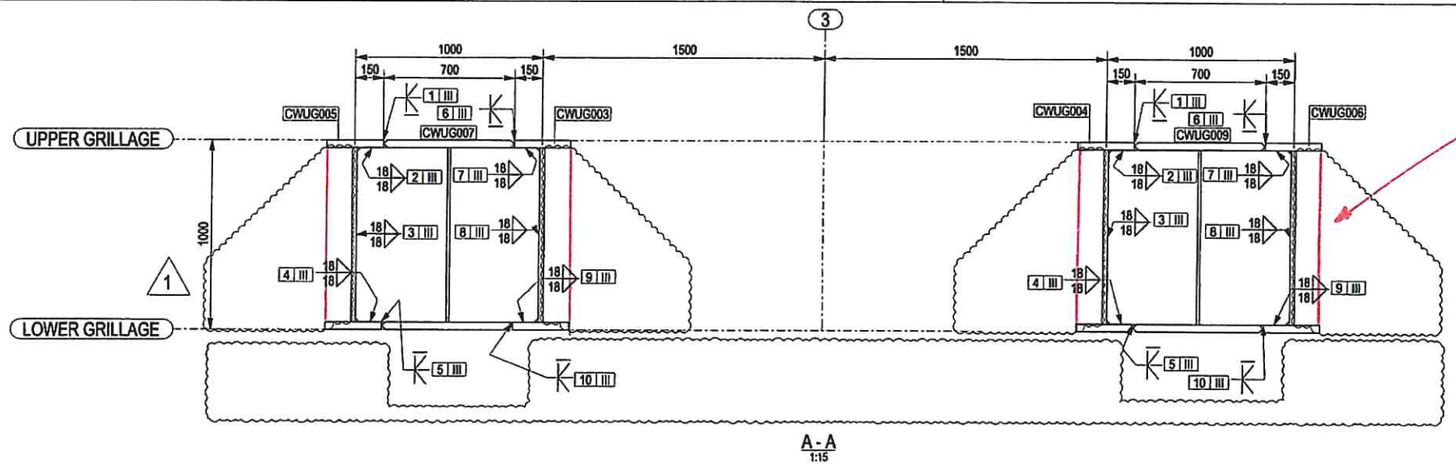
REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
0	21/02/2025	CM-TS	MR	DC	ISSUED FOR CONSTRUCTION

CROSSWIND

ROSETTI MARINO

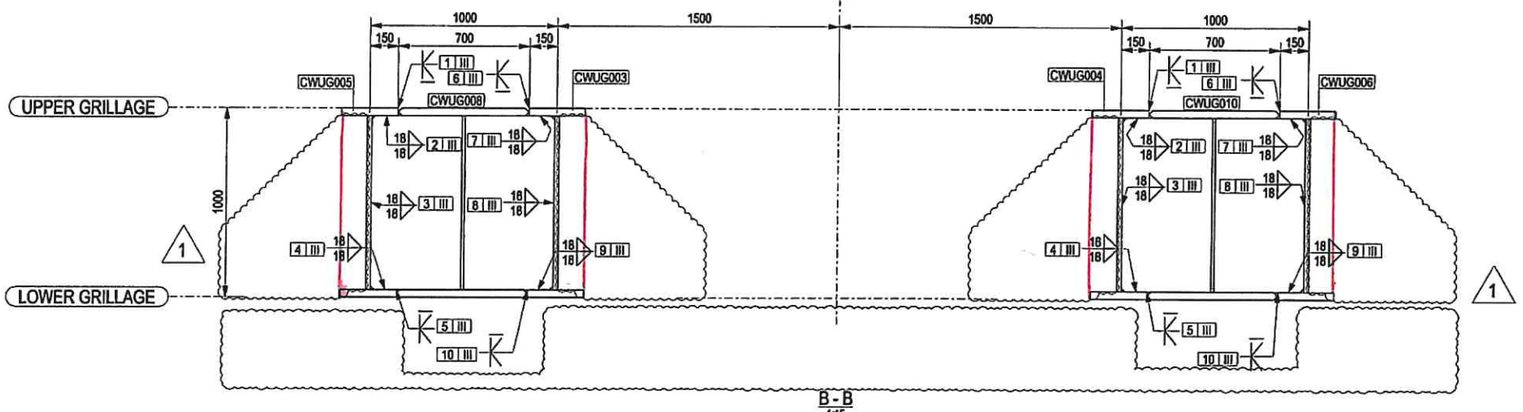
TITLE :
BASE LOAD POWER HUB (BLPH)
TP SEAFASTENING
MARK CWS007 – CWS008

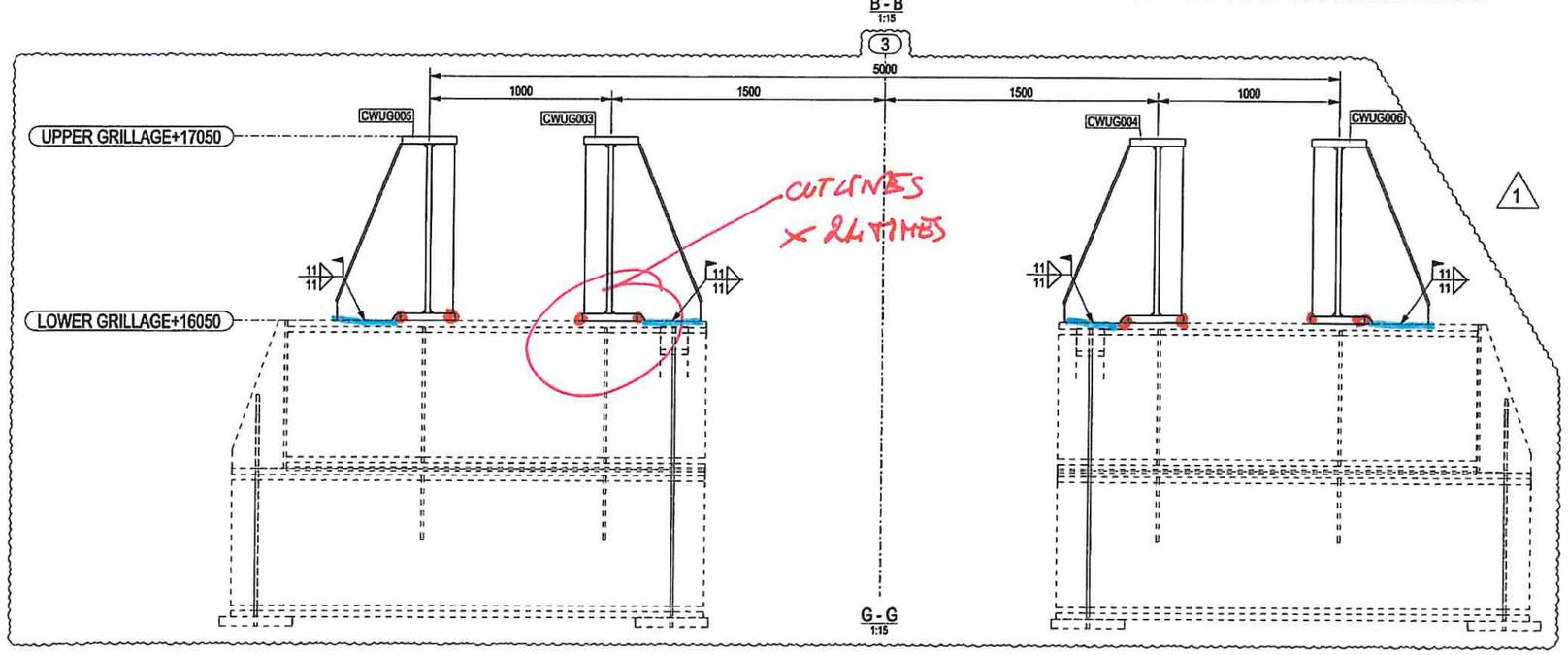
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:15
DRAWN CM-TS	CHECKED M.ROSSI	APPROVED D.CASADIO	DATE 21/02/2025
A1	DRAWING NO. 123A90–FDL–ST–DD–90791	SHEET 001	REV. 0



Typ. taglio vecchi spruzzi a filo

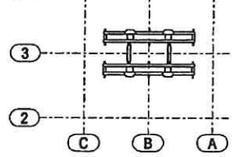
Transtion Piece 2/2





NOTES
1 – ALL DIMENSIONS AND ELEVATIONS ARE IN MILLIMETERS U.N.O.
2 – ALL ELEVATIONS ARE REFERED TO C.D.
3 – FOR PLAN VIEW E DRAWINGS LIST SEE DWG 123A90-FDL-ST-DD-90603

KEY PLAN



UPPER GRILLAGE

HOLDS

REFERENCE DRAWINGS

DWG No.	DESCRIPTION
123A90-DDL-TI-DD-99036	TP-UPPER GRILLAGE - PLAN VIEW
123A90-DDL-TI-DD-99037	TP-UPPER GRILLAGE - SECTIONS
123A90-DDL-TI-DD-99038	TP-UPPER GRILLAGE - SECTION AND DETAILS

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
1	25/02/2025	CM-TS	MR	DC	REVISED WHERE INDICATED
0	09/05/2024	CM-TS	MR	DC	ISSUED FOR CONSTRUCTION

CROSSWIND

ROSETTI MARINO

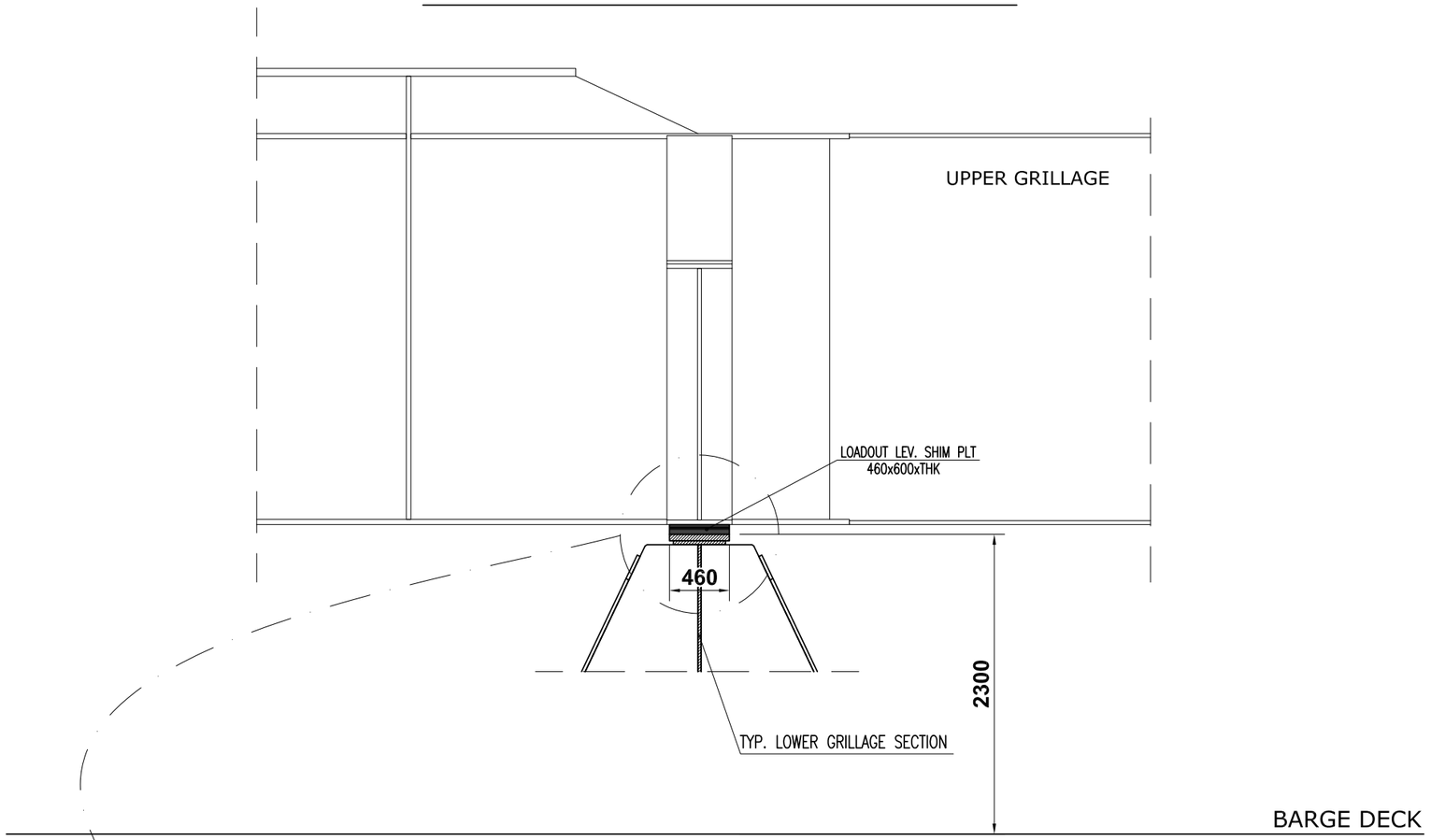
TITLE :
BASE LOAD POWER HUB (BLPH)
TP – UPPER GRILLAGE
ASSEMBLY

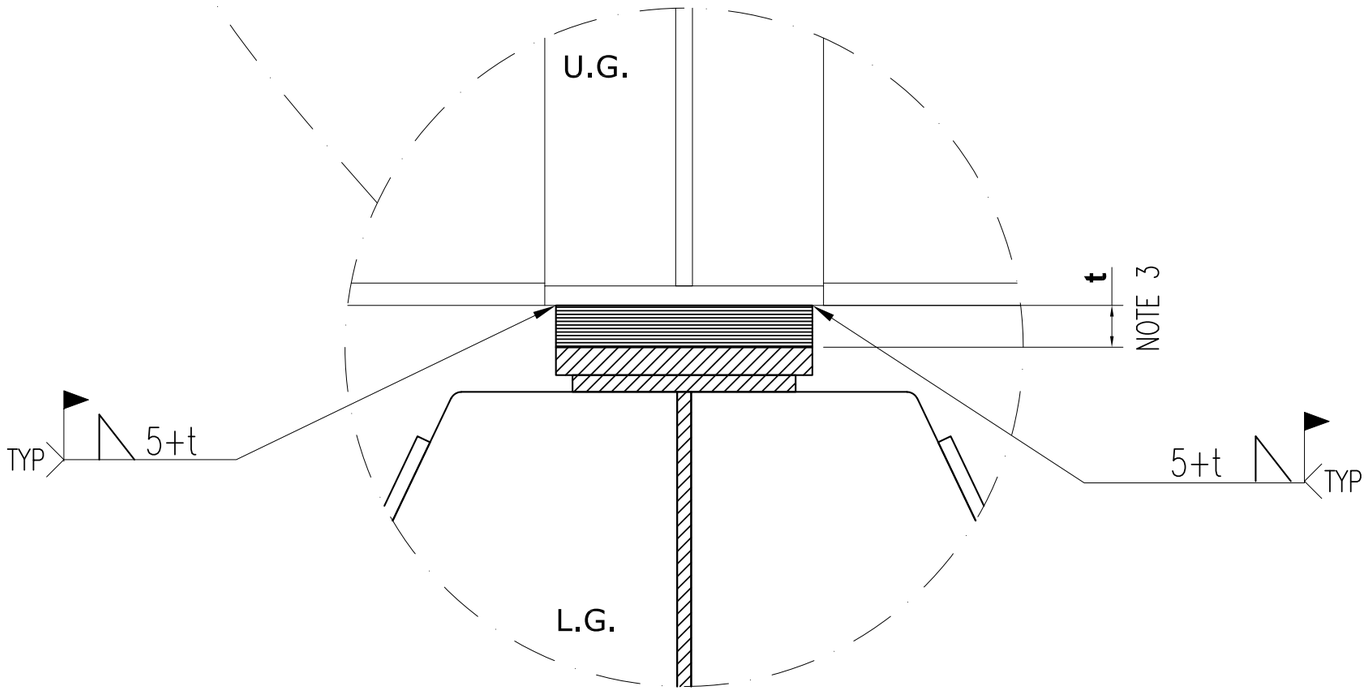
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE 1:50
DRAWN CM-TS	CHECKED M.ROSSI	APPROVED D.CASADIO	DATE 25/02/2025
A1	DRAWING NO. 123A90–FDL–ST–DD–90604	SHEET 001	REV. 1

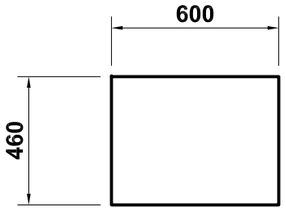
ATTACHMENT R – SHIMMING PLATES FOR FINAL SET DOWN

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TYPICAL GRILLAGE ARRANGEMENT







SUITABLE NUMBER OF LOADOUT LEV. SHIM PLT. TO BE FABRICATED (t 1, 2, 3 mm)

NOTES:

1 - ALL DIMENSIONS ARE IN MILLIMETERS IF NOT SPECIFIED OTHERWISE
2 - ALL PLATES TO BE EN-10025 S355 JR OR EQUIVALENT
3 - LOADOUT LEV. SHIM PLATES IF ANY

REFERENCES:

00	05/03/2021	FC	FCR	CA	Issue for review

TOPSIDE - TYP SHIMMING SCHEME