

TENDER DOCUMENTATION

Tender Announcement (public bidding)

Procurement number: No.2 Construction design

Procurement is financed from Norwegian Financial Mechanism 2014-2021

Innovation, Research, Education and Competitiveness Programme in Croatia

“Business Development and Innovation Croatia”

*Grant contract reference: case number **2021/585223***

Supported by a grant from Norway through the Norwegian Financial Mechanism 2014-2021, in the frame of the Programme “Business Development and Innovation Croatia”

Måløy 04.03.2022.

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1. General information

Project name: ECo marina - Development of Innovative Blue Technologies for Maritime Supra-structure, Grant contract reference: case number **2021/585223**.

Tender Announcement for Proposals: Construction design

Ref. No: Procurement No. 2

Reference to the source of financing.: Procurement is financed from Norwegian Financial Mechanism 2014-2021 Innovation, Research, Education and Competitiveness Programme in Croatia “Business Development and Innovation Croatia”

The beginning of the procurement process: 04.03.2022.

List of economic entities with which the Contracting Project Promotor is in conflict of interest:

Company name	Org. nr.	Address
Brothers AS	956 503 523	6700 Måløy
Sea Technology AS	922 136 831	6700 Måløy
EasyForm AS	988 147 737	6718 Deknepollen
Bruket Eiendomsselskap AS	839 202 512	6718 Deknepollen
Carlson Eiendom AS	963 349 637	6700 Måløy
Cens AS	913 016 726	6700 Måløy
Måløy Sentrumsbygg AS	977 484 049	6700 Måløy
Måløy Verft AS	983 712 169	6718 Deknepollen
Nordwest 3d AS	979 392 915	6700 Måløy
Puskøy Havn	997 868 161	6700 Måløy
Skipselektro AS	914 930 642	6718 Deknepollen
Vyrd AS	924 988 363	6700 Måløy
OceanMotion AS	927 471 272	6700 Måløy
Briefo AS	989 078 305	0270 Oslo
Nørd AS	918 504 478	1400 Ski
Off Tek AS	976 221 176	0270 Oslo
Open Ocean Farming AS	825 580 662	1400 Ski
Open Ocean Holding AS	926 150 359	1400 Ski
Subfarm AS	928 106 977	6700 Måløy

Type of contract: Services

Type of tender procedure: The announcement of the Procurement Notice (Tender Announcement).
Procurement of works, goods, and services, where estimated value of procurement is above EUR 60.000

Quantities: 1

Offer validation period: Minimum 45 days from the date of submission of offer

2. The name of Contracting Project Promotor

Name of Contracting Project Promotor: STADT TOWING TANK AS

VAT No.: 991 758 976 MVA

Address: Blålidveien 51, 6718 Deknepollen

Contact person: Vegard Å. Larssen

Phone number: +47 92 64 51 09

Email: vegard@stadttowingtank.no

3. Procurement subject

a. Background

This procurement is implemented as a part of the project ECo marina - Development of Innovative Blue Technologies for Maritime Supra-structure, financed from Norwegian Financial Mechanism 2014-2021 Innovation, Research, Education and Competitiveness Programme in Croatia “Business Development and Innovation Croatia”. Project is implemented jointly by Stadt Towing Tank AS (Norway) and Marinetek Adriatic d.o.o. (Croatia).

Main aim of the project is development of 3 innovative floating solutions (2 pontoons and 1 breakwater) in a total of 8 models:

Series #	Model #	Composite pontoons and wave breakers to be developed	Corresponding existing pontoons and wave breakers		
1.	1	All Concrete Composite Pontoon (ACC) - 2400 (lengths 9m, 12m and 15m) M2409ACC length 8,92 m	All-Concrete Pontoons series M2409AC All Concrete length 8,92 m		
	2			M2412ACC length 11,92 m	M2412AC All concrete length 11,92 m
	3			M2415ACC length 14,92 m	M2415AC All Concrete length 14,92 m
2.	4	Premier Composite Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m) M3312PEC length 12,20 m	Premier Pontoons series M3312PE Premier length 12,20 m		
	5			M3316PEC length 16,05 m	M3316PE Premier length 16,05 m
	6			M3320PEC length 19,90 m	M3320PE Premier length 19,90 m
3.	7	Breakwater Composite BC serie 4300 (lengths 16m and 20m) M4316BRKC length 16,05 m	Breakwater series M4316BRK Breakwater length 16,05 m		
	8			M4320BRKC length 19,90 m	M4320BRK Breakwater length 19,90 m

Table 1: List of floaters to be developed and their corresponding existing product.

b. Current designs

All the current design of existing (old) version uses watertight, steel reinforced plastic fibre concrete. Exposure class according to European EN 206-1 standard. The core of structures is expanded polystyrene (EPS) with density 15kg/m³. The steel reinforcement is partly or fully hot dip galvanised steel. This has some challenges:

- deterioration in the sense of quality, reliability, and aesthetic appearance through the years (operational/useful life cycle of maximum 30 yrs.)
- not strong enough to respond to market trend of opening new waterfronts in more challenging areas (under heavier marine weather conditions) and
- trend of building bigger boats (average vessel length is increasing)

For reference the corresponding existing floating elements on the market today are listed below with main technical specifications. Technical specification sheets for existing models are annexed to this Tender announcement

All Concrete Pontoon (AC) - 2400 (lengths 9m, 12m and 15m)

- M2409AC All Concrete length 8,92 m
- M2412AC All concrete length 11,92 m
- M2415AC All Concrete length 14,92 m

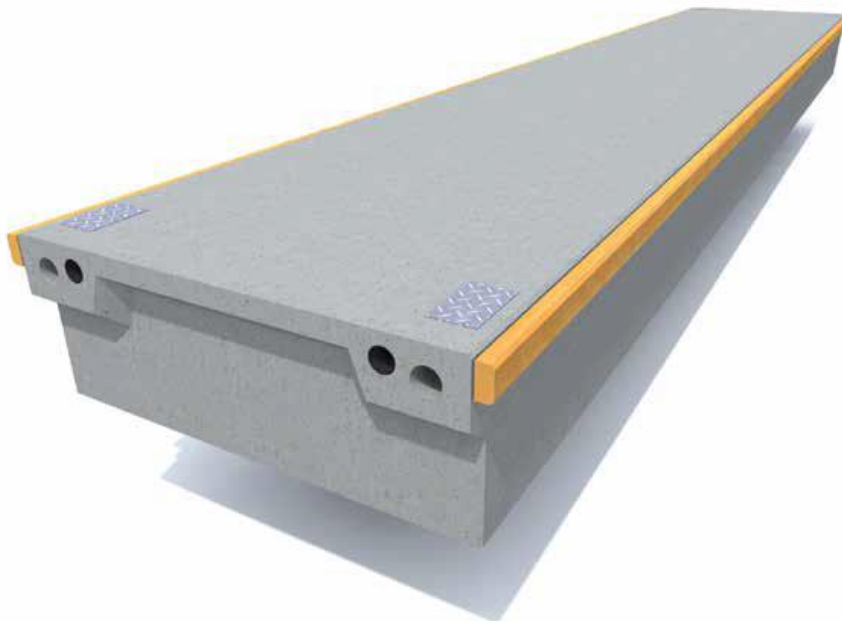


Figure 1: All Concrete Pontoon: Printscreen from "All-Concrete Pontoons 2400, 2600, 3000.pdf"

FLOATS	M2409AC	M2412AC	M2415AC
Length (m)	8,92	11,92	14,92
Width with fenders (m)	2,4	2,4	2,4
Concrete width (m)	2,2	2,2	2,2
Height (m)	0,85	0,85	0,85
Weight (t)	7,0	9,4	11,8
Net capacity (kN/m ²)	4,7	4,7	4,7
Freeboard (m)	0,47	0,47	0,47
Strength of joint (kN)	2x180	2x180	2x180
Joint gap (mm)	35	35	35

Table 2: Technical data All concrete Pontoon. Printscreen from "All-Concrete Pontoons 2400, 2600, 3000.pdf"

1. Premier Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m)

- M3312PE Premier length 12,20 m
- M3316PE Premier length 16,05 m
- M3320PE Premier length 19,90 m

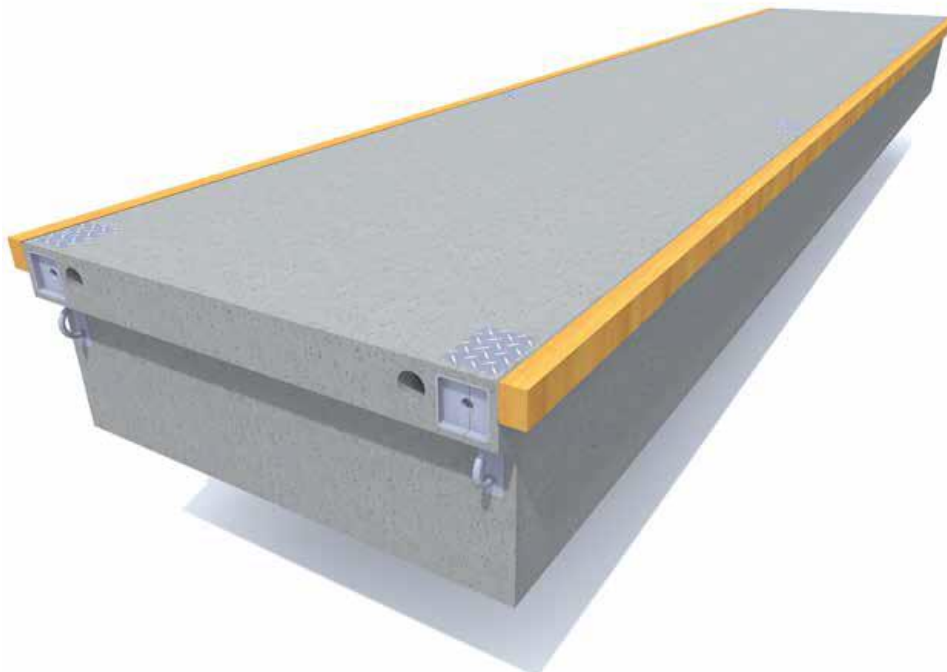


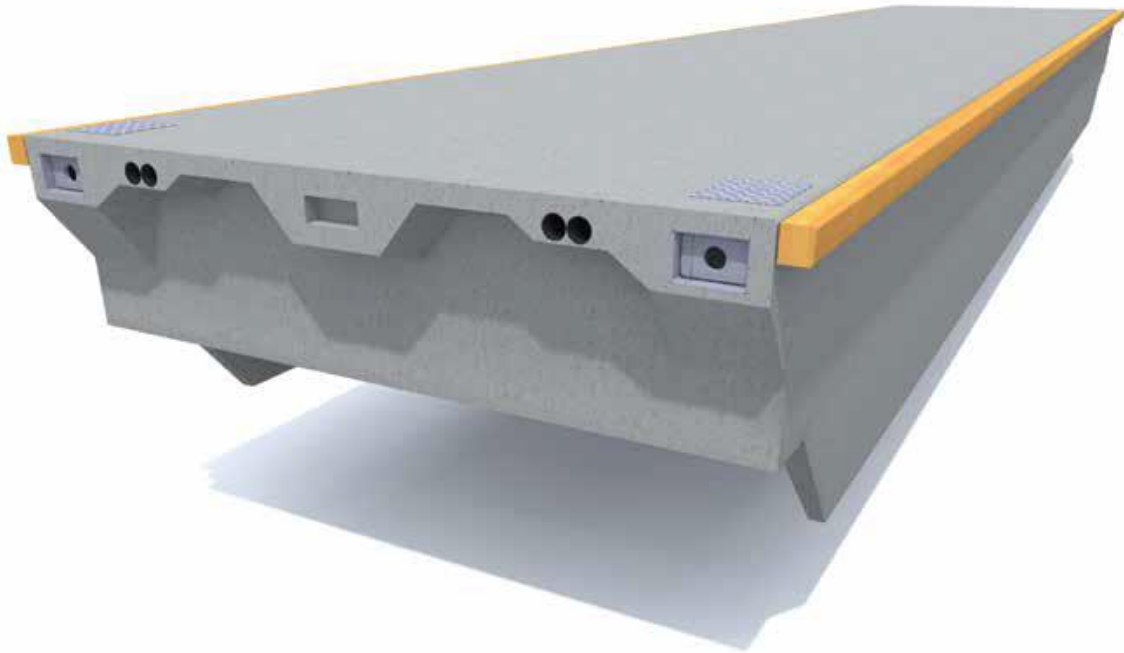
Figure 3: Premier Pontoon: Printscreen from "Premier Pontoons 2700, 3300.pdf"

FLOATS	M3312PE	M3316PE	M3320PE
Length (m)	12,20	16,05	19,90
Width with fenders (m)	3,3	3,3	3,3
Concrete width (m)	3,0	3,0	3,0
Weight (t)	15,3	20,1	24,9
Height (m)	1,0	1,0	1,0
Net capacity (kN/m ²)	5,8	5,8	5,5
Freeboard (m)	0,58	0,58	0,58
Strenght of joint (kN)	2x322	2x322	2x322
Joint gap (mm)	35	35	35

Table 2: Technical data Premier Pontoon. Printscreen from " Premier Pontoons 2700, 3300.pdf"

2. Breakwater (BRK) - 4300 (lengths 16m and 20m)

- M4316BRK Breakwater length 16,05 m
- M4320BRK Breakwater length 19,90 m



3.2. M4320BRK Breakwater length 19,90 m Figure 4: Breakwater. Printscreen from "K-series Breakwater 3300K, 4300K, 5300K.pdf"

FLOATS	M3316BRK	M4320BRK
Length (m)	16,05	19,90*
Width with fenders (m)	3,3	4,3
Concrete width (m)	3,0	4,0
Height (m)	1,8	1,8
Weight (t)	27,4	40,6
Net capacity (kN/m ²)	5,5	6,0
Freeboard (m)	0,55	0,60
Strength of joint (kN)	2x812	2x812
Joint gap (mm)	90	90

c. Service Work Packages

To overcome the issues listed above, STT and Marinetek are aiming to develop new floating elements which will be developed with a highly innovative combination of concrete with carbon composite reinforcements - combination of carbon bars and mesh infused with epoxy resin strategically deployed to secure maximum strength and minimize use of concrete compared to existing models/products. The subject of procurement is Construction design of 3 new floating elements – 8 models covering as listed above. The following work packages are proposed:

1. PREPARATION OF THE PROJECT TASK AND LOAD ANALYSIS

- **Design Code and Standards**
 - i. These criteria serve as guidelines when designing the proposed project.
- **Load Considerations**
 - i. Hydrostatical
 - ii. Hydrodynamical. Current and waves
 - iii. External load from moored vessels
 - iv. Etc.
- **Descriptions of the tools used for solving the construction design project.**
- **Description and outline how the entire project will be performed.**

2. INITIAL DESIGN AND SIMULATION/MATHEMATICAL MODEL CALIBRATION:

- Make initial design for one floating element. This should be *All Concrete Composite Pontoon (AC) - 2400 – length 11,92m*.
- After the prototype is build, based on initial design, it will be tested physically to calibrate the mathematical model used during the design phase. Accurate measurement of load and deflection is important. (geodetic measurement of deflection)
- Comparison and analysis of deflection between numerical simulation model and physical prototype. Reporting of findings and adjustments to be made.

3. STATIC CALCULATION OF EXISTING PONTOONS AND BREAKWATER

1. All Concrete Pontoon (AC) - 2400 (lengths 9m, 12m and 15m)
 - M2409AC All Concrete length 8,92 m
 - M2412AC All concrete length 11,92 m
 - M2415AC All Concrete length 14,92 m
2. Premier Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m)
 - M3312PE Premier length 12,20 m
 - 2M3316PE Premier length 16,05 m
 - M3320PE Premier length 19,90 m
3. Breakwater (BRK) - 4300 (lengths 16m and 20m)
 - 3.1. M4316BRK Breakwater length 16,05 m
 - 3.2. M4320BRK Breakwater length 19,90 m

4. COMPLETE DESIGN PROJECT WITH SAVINGS ON CONCRETE AND WITH THE INSTALLATION OF REPLACEMENT COMPOSITE REINFORCEMENT FOR NEW MODELS

- Based on calibrated simulation model and static calculations of existing floaters, the structural design for all 8 models can be performed.

1. All Concrete Composite Pontoon (ACC) - 2400 (lengths 9m, 12m and 15m)

- M2409ACC length 8,92 m
- M2412ACC length 11,92 m
- M2415ACC length 14,92 m

2. Premier Composite Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m)

- M3312PEC length 12,20 m
- M3316PEC length 16,05 m
- M3320PEC length 19,90 m

3. Breakwater Composite BC serie 4300 (lengths 16m and 20m)

- M4316BRKC length 16,05 m
- M4320BRKC length 19,90 m

Calculation of savings in concrete when reinforcement material is not corrosive. Less covering thickness and design of new floating elements when reinforcement is based on composite material. Including Technical description, load analysis, static calculation, drawing documentation, conclusion = Analysis of deflection / deformation and stress state of elements

d. Deliverables

#	Deliverable
1	<p>A technical report describing the following: PREPARATION OF THE PROJECT TASK AND LOAD ANALYSIS</p> <ul style="list-style-type: none"> • Design Code and Standards • Descriptions of the tools used for solving the construction design project. <p>Description and outline how the entire project will be performed.</p>
2	<p>A technical report describing the following. INITIAL DESIGN AND SIMULATION/MATHEMATICAL MODEL CALIBRATION:</p> <ul style="list-style-type: none"> • Initial design for one floating element. This should be <i>All Concrete Composite Pontoon (AC) - 2400 – length 11,92m.</i> • Test report describing the test setup, measurements, and analysis. • Comparison and analysis of deflection between numerical simulation model and physical prototype. Reporting of findings and adjustments to be made.

3	<p>A technical report describing the following: STATIC CALCULATION OF EXISTING PONTOONS AND BREAKWATER All Concrete Pontoon (AC) - 2400 (lengths 9m, 12m and 15m) Premier Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m) Breakwater (BRK) - 4300 (lengths 16m and 20m)</p> <p>Construction design draft with savings on concrete and with the installation of replacement composite reinforcement for new models</p>
4	<p>A final technical report describing the following: COMPLETE DESIGN PROJECT WITH SAVINGS ON CONCRETE AND WITH THE INSTALLATION OF REPLACEMENT COMPOSITE REINFORCEMENT FOR NEW MODELS -Complete design of all 8 models. All documentation and ready for production -Savings on concrete compared to existing design.</p>

Selected Service provider and Contracting project promotor will mutually sign delivery log for every deliverable. By signing delivery log deliverables will be considered accepted.

Documentation should be submitted in triplicate and in digital form of the project – PDF.

Documentation should be in English and Croatian language.

Contracting project promotor is annexing to this Announcement technical specification sheet for existing models – Annex V, Annex VI and Annex VII. Following contract signature and NDA signature within 8 days, Contracting authority will provide full technical design for existing models.

Bill of Quantities is also integral part of this Tender Announcement, and it is annexed to it in MS Excel format (Annex II). It includes list of all items of procurement subject with expressed quantities. Tenderers are obliged to insert Unit price (VAT excluded), Total price (VAT excluded), VAT (if applicable) and Total price with VAT at the end of the table. If Tenderer does not fill Bill of Quantities in accordance with requirements set in this Tender Announcement, or modifies text or quantities in Bill of Quantities, that offer will be considered invalid and may be rejected.

If the information or documentation that the economic entity has submitted are incomplete, erroneous or appear to be so, or if some documents are missing, Contracting Project Promotor may, respecting the principles of equal treatment and transparency request from economic entity to complement, clarify or submit the missing information or documentation within the appropriate period, which may not be shorter than five days. The above should not lead to negotiation related to tender awarding criteria or offered subject of procurement.

4. Criteria and evidence of Tenderer's capacities:

Technical key expert

Tenderer needs to prove to have available at least 1 technical key expert with experience in designing maritime structures

Minimum capacity criteria	Proofs to be submitted
<p>Key expert with experience in designing maritime structures:</p> <ul style="list-style-type: none"> Completed undergraduate and graduate university studies or integrated undergraduate and graduate university studies or specialist graduate professional studies, and acquired at least 300 ECTS credits, during studies, or by a special regulation acquired appropriate level of education in technical sciences (minimum level of education 7, according to European Qualification Framework EQF) experience in designing maritime structures 	<ul style="list-style-type: none"> Statement of Tenderer on key expert availability with experience in designing maritime structures Copy of key expert diploma Curriculum vitae of the expert with evident experience in designing maritime structures

In case that selected Tenderer wishes to change nominated key expert in its Offer, prior approval of the Contracting Authority needs to be obtained with listed data on new key expert and submitted documents for expert as required in the Tender Announcement. New expert to be enlisted in the contract must satisfy all applicable requirements specified in this documentation.

5. Modification of Tender Announcement and clarifications

Before expiry of the deadline for submission of tenders, Tenderers can request additional information on the tender. Contracting project promotor shall make its reply available at the Stadt Towing Tank web page <https://www.stadttowingtank.no/>, so that all economic entities are informed about the change at the same time, without disclosing the identity of the economic operator requesting the information. Clarification requests can be submitted solely via email address: vegard@stadttowingtank.no. If the change is substantial (technical specifications are changed, additional documentation is required from tenders etc.), the

deadline for submission of tenders will be extended as appropriate by the Contracting project promotor.

6. Estimated tender value

Estimated tender value: **90.000,00 EUR (ninety thousand euro)**

7. Offer (bid)

Offer must be consisted of:

1. Completed mandatory tender Annexes:
 1. Offer Letter (Annex I)
 2. Bill of Quantities (Annex II)
 3. Proofs according to point 4. Criteria and evidence of Tenderer's capacities:
 - Statement of Tenderer on key expert availability with experience in designing maritime structures,
 - Copy of key expert diploma,
 - Curriculum vitae of the expert with evident experience in designing maritime structures)

The offer price is unchanged for the duration of the contract. It includes all costs and discounts, and it is final.

- Prices must be quoted in euros (EUR).
- The price is expressed in figures.
- All costs and discounts are included in the price.
- It is necessary to state the unit prices for each item of Tenderer's offer and the total cost without value added tax (VAT).
- Offer price needs to be quoted in a following manner: with VAT excluded, VAT amount and total price with VAT, rounded to two decimal places.
- If the Tenderer is not in the VAT system, then in the place envisaged for entering the price with VAT included he writes the same amount that is entered in the place foreseen for price without VAT, and the place to enter the VAT amount leaves blank or is entered 0.

The offer is made in a way that makes it whole. If due to the scope or other objective circumstances of a bid cannot be made in a way that it is a whole, then it is made in two or more parts. Parts of the offer such as catalogues are marked by the name and quoted in the contents of the bidding as part of the offer/bid.

If the bid is made from several parts, the Tenderer must state in the content of the bid how many parts of the bid it consists of.

Corrections in the offer must be made in a way that they are visible. The corrections must be confirmed by the signature of the Tenderer on the date of the correction date.

By submitting offer Tenderers agree to offer services will all requirements met as described in this documentation.

8. Offer modification / amendment / withdrawal

The Tenderer may submit an amendment and / or modified to the offer by the deadline for submission of offers. Amendments and / or supplements to the tender shall be submitted in the same manner as the basic tender with the obligatory indication that it is an amendment and / or supplement to the tender. In this case, offers are opened in the reverse order of receipt, and the time of receipt is considered the delivery of the latest version of the offer. Tenderer may withdraw an offer by a written statement until the deadline for submission of offer. The written statement is submitted in the same way as the bid with the obligatory indication that it is a subject of withdrawing the bid. The submitted offer and accompanying documentation will not returned to the Tenderer.

9. Awarding criteria

Lowest price (VAT Excluded) of Tenderer with valid offer satisfying all requirements set in this Tender Announcement.

10. Deadline and venue of execution of subject of procurement

Deadline: 210 days from the mutual contract signature.

#	Deliverable	deadline
1	<p>A technical report describing the following: PREPARATION OF THE PROJECT TASK AND LOAD ANALYSIS</p> <ul style="list-style-type: none"> • Design Code and Standards • Descriptions of the tools used for solving the construction design project. <p>Description and outline how the entire project will be performed.</p>	40 days from contract signature
2	<p>A technical report describing the following. INITIAL DESIGN AND SIMULATION/MATHEMATICAL MODEL CALIBRATION:</p> <ul style="list-style-type: none"> • Initial design for one floating element. This should be <i>All Concrete Composite Pontoon (AC) - 2400 – length 11,92m.</i> • Test report describing the test setup, measurements, and analysis. 	120 days from contract signature

	<ul style="list-style-type: none"> • Comparison and analysis of deflection between numerical simulation model and physical prototype. Reporting of findings and adjustments to be made. 	
3	<p>A technical report describing the following: STATIC CALCULATION OF EXISTING PONTOONS AND BREAKWATER All Concrete Pontoon (AC) - 2400 (lengths 9m, 12m and 15m) Premier Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m) Breakwater (BRK) - 4300 (lengths 16m and 20m)</p> <p>Construction design draft with savings on concrete and with the installation of replacement composite reinforcement for new models</p>	180 days from contract signature
4	<p>A final technical report describing the following: COMPLETE DESIGN PROJECT WITH SAVINGS ON CONCRETE AND WITH THE INSTALLATION OF REPLACEMENT COMPOSITE REINFORCEMENT FOR NEW MODELS -Complete design of all 8 models. All documentation and ready for production -Savings on concrete compared to existing design.</p>	210 days from contract signature

Venue of execution of subject of procurement: Stadt Towing Tank AS, Blålidveien 51. 6718 Deknepollen.

11. Terms of payment

Payment shall be done based on invoice by Service provider and following mutual signature of delivery log in the following dynamic:

#	Deliverable	Payment
1	<p>A technical report describing the following: PREPARATION OF THE PROJECT TASK AND LOAD ANALYSIS</p> <ul style="list-style-type: none"> • Design Code and Standards • Descriptions of the tools used for solving the construction design project. • Description and outline how the entire project will be performed. 	10% of the contract value

2	<p>A technical report describing the following.</p> <p>INITIAL DESIGN AND SIMULATION/MATHEMATICAL MODEL CALIBRATION:</p> <ul style="list-style-type: none"> • Initial design for one floating element. This should be <i>All Concrete Composite Pontoon (AC) - 2400 – length 11,92m.</i> • Test report describing the test setup, measurements, and analysis. • Comparison and analysis of deflection between numerical simulation model and physical prototype. Reporting of findings and adjustments to be made. 	20% of the contract value
3	<p>A technical report describing the following:</p> <p>STATIC CALCULATION OF EXISTING PONTOONS AND BREAKWATER</p> <p>All Concrete Pontoon (AC) - 2400 (lengths 9m, 12m and 15m) Premier Pontoon (PEC) – 3300 (lengths 12m and 16m and 20m) Breakwater (BRK) - 4300 (lengths 16m and 20m)</p> <p>Construction design draft with savings on concrete and with the installation of replacement composite reinforcement for new models</p>	20% of the contract value
4	<p>A final technical report describing the following:</p> <p>COMPLETE DESIGN PROJECT WITH SAVINGS ON CONCRETE AND WITH THE INSTALLATION OF REPLACEMENT COMPOSITE REINFORCEMENT FOR NEW MODELS</p> <p>-Complete design of all 8 models. All documentation and ready for production -Savings on concrete compared to existing design.</p>	40% of the contract value
5	<p>Obtained Type approval certificate from authorized classification body for all 8 new floating models</p>	10% of the contract value

Other provisions

Language: Tenderers must submit their offers either in English or Norwegian.

In case of unforeseen circumstances caused by external factors beyond the control of the Contracting project promotor and Tenderer, contract amendments are possible.

12. Deadline and address for submission of Tenders

Offers shall be submitted only electronically via e-mail to the e-mail address: vegard@stادتowingtank.no latest by **15.03.2022 24:00** local time.

E-mail subject should be: “*Construction design procurement*”.