

Marine Department Shipbuilding Tender No. 1/2026

Tender Addendum No. 1

Tender Reference: Marine Department Shipbuilding Tender No. 1/2026

Procuring Department: Marine Department

Subject: Supply of Two (2) Steel Vessels for the Marine Department

Amendments as follows:

(i) Original Clause 1 of Part V – Schedule 10:

1. *The Tenderer shall provide in the relevant table below information of vessel(s) in vessel design and construction or just vessel construction project (each a “vessel project” (in upper or lower case)) as further specified in Part B of the Marking Scheme in Annex D (Marking Scheme) to Part II – Conditions to Tender together with the required supporting documents.*

Should read as

1. *The Tenderer shall provide in the relevant table below information of vessel(s) in vessel design and construction project (each a “vessel project” (in upper or lower case)) as further specified in Part B of the Marking Scheme in Annex D (Marking Scheme) to Part II – Conditions to Tender together with the required supporting documents.*

(ii) Original Clause 1.8.5 (g)(i) of Part VII – Technical Specifications:

1.8.5 (g)(i)

Should read as

1.8.5 (g)(i) The GPS or Differential Global Positioning System (DGPS) which is properly calibrated (with supporting calibration documents) and installed onboard the Vessel and is acceptable to GNC; or other speed measuring methods that are acceptable to GNC; or

(iii) Original Clause 1.8.5 (h) of Part VII – Technical Specifications:

1.8.5 (h) The GPS or Differential Global Positioning System (“DGPS”) which is properly calibrated (with supporting calibration documents) and installed on board the Vessel, is acceptable to GNC; or other speed measuring methods that are acceptable to GNC.

Should read as

*1.8.5 (h) **Not used.***

(iv) Original Clause 3.3.10 (a) of Part VII – Technical Specifications:

3.3.10 (a) The Vessel shall comply fully with the intact stability criteria stipulated in 2008 IS Code (i.e. the International Code on Intact Stability, 2008, adopted by IMO resolution MSC.267(85) in the vonf ersion as at the Contract Date;

Should read as

*3.3.10 (a) The Vessel shall comply fully with the intact stability criteria stipulated in 2008 IS Code (i.e. the International Code on Intact Stability, 2008, adopted by IMO resolution MSC.267(85) in the **version** as at the Contract Date;*

(v) Original Clause 7.1.1 of Part VII – Technical Specifications:

7.1.1 The Vessel is for use in Hong Kong and shall be equipped with methanol-diesel dual electric generator sets and electric propulsion drives system, it is desirable that the main generators, gearboxes with clutches, electric motors and any other machinery offered are those at present commonly used by ships operating in Hong Kong waters.

Should read as

*7.1.1 The Vessel is for use in Hong Kong and shall be equipped with methanol-diesel dual electric generator sets and electric propulsion drives system. **The** main generators, gearboxes with clutches, electric motors and any other machinery offered **shall be acceptable to GNC.***

(vi) Original Clause 7.1.3 of Part VII – Technical Specifications:

7.1.3 It is desirable that the manufacturers and makes of engines are the ones commonly used in Hong Kong. It is desirable that the support of local agents shall include supplying brand new proposed main engines, electric generators and other machinery for five years after vessel delivery.

Should read as

*7.1.3 **The** manufacturers and **makers** of engines **shall be acceptable to GNC. In addition, the** support of local agents shall include supplying brand new proposed main engines, electric generators and other machinery for five years after **Vessel** delivery.*

(vii) Original Clause 7.2.6 (c) of Part VII – Technical Specifications:

7.2.6 (c) Full Speed Mode – minimum highest achievable contract speed as specified in Paragraph 2.4.1.

Should read as

*7.2.6 (c) Full Speed Mode – minimum highest achievable contract speed as specified in Paragraph **2.3.1 of this Part VII.***

(viii) Original Clause 7.17.1 of Part VII – Technical Specifications:

Fresh water tank arrangement

(a) One (1) fresh water tank with a total capacity of not less than 1,000 litres shall be arranged in the Vessel to supply fresh water to the main deck,...

(b) It shall be installed in the machine space as indicated on the Guidance General Arrangement Plan.

Should read as

***7.17.1** Fresh water tank arrangement*

(a) One (1) fresh water tank with a total capacity of not less than 1,000 litres shall be arranged in the Vessel to supply fresh water to the main deck,...

- (b) It shall be installed in the machine space as indicated on the Guidance General Arrangement Plan.*

(ix) Original Clause 7.17.12 of Part VII – Technical Specifications:

7.17.11 Cold freshwater taps completed with PVC braided / reinforced transparent hoses shall be fitted on the main deck forward and aft, ...

Should read as

7.17.12 *Cold freshwater taps completed with PVC braided / reinforced transparent hoses shall be fitted on the main deck forward and aft, ...*

(x) Original Clause 9.6.3 of Part VII – Technical Specifications:

9.6.3 The DGPS shall consist of the following:

- (a) 7" (or larger size as agreed by MD) ultra-bright high contrast colour LCD display*
- (b) Touch screen and keyboard;*
- (c) DGPS to be compatible with GPS and GLONASS networks;*
- (d) DGPS to have receiver autonomous integrity monitoring (RAIM) functionality to alert when position accuracy is below user set limit.*
- (e) DGPS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;*
- (f) Capable of integrating with secure AIS, radar, ECDIS.*
- (g) The DGPS antenna/receiver shall be connected to the radar for the provision of GPS-related data, such as position fix, time, speed over ground and course over ground;*
- (h) The GPS system shall be fully compatible with the radar;*
- (i) The GPS system shall support Serial NMEA 0183, Serial 26-pin D-sub, Serial 9-wire RS232, Serial 3-wire RS232 and Ethernet (NMEA 2000); and*
- (j) The GPS system shall support at least the following data displayed at the GPS display unit and through outputs to the radar display:*
 - (a) Position (latitude/longitude): to at least four (4) decimal points*
 - (b) Horizontal Position accuracy (at speed of 15kt): less than or equal to 10m*
 - (c) Course: 1° resolution*
 - (d) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits*
 - (e) Date and time: selectable as GMT or local mode*

(f) Satellite status information

Should read as

9.6.3 *The DGPS shall consist of the following:*

- (a) 7" (or larger size as agreed by MD) ultra-bright high contrast colour LCD display;*
- (b) Touch screen and keyboard;*
- (c) DGPS to be compatible with GPS and GLONASS networks;*
- (d) DGPS to have receiver autonomous integrity monitoring (RAIM) functionality to alert when position accuracy is below user set limit;*
- (e) DGPS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;*
- (f) Capable of integrating with secure AIS, radar, ECDIS;*
- (g) The DGPS antenna/receiver shall be connected to the radar for the provision of GPS-related data, such as position fix, time, speed over ground and course over ground;*
- (h) The GPS system shall be fully compatible with the radar;*
- (i) The GPS system shall support Serial NMEA 0183, Serial 26-pin D-sub, Serial 9-wire RS232, Serial 3-wire RS232 and Ethernet (NMEA 2000); and*
- (j) The GPS system shall support at least the following data displayed at the GPS display unit and through outputs to the radar display:*
 - (i) Position (latitude/longitude): to at least four (4) decimal points;*
 - (ii) Horizontal position accuracy (at speed of 15kt): less than or equal to 10m;*
 - (iii) Course: 1°resolution;*
 - (iv) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits;*
 - (v) Date and time: selectable as GMT or local mode; and*
 - (vi) Satellite status information.*

(xi) Original Clause 9.7.3 of Part VII – Technical Specifications:

9.7.3 *The BDS shall consist of the following:*

- (a) 7" (or larger size as agreed by GNC and user Department) ultra-bright high contrast colour LCD display;*
- (b) Keyboard;*
- (c) BDS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;*
- (d) Capable of integrating with secure AIS, radar, ECDIS;*
- (e) The BDS antenna/receiver shall be connected to the radar for the provision of BDS-related*

- data, such as position fix, time, speed over ground and course over ground;*
- (f) The BDS system shall support Serial NMEA 0183 format; and*
- (g) The BDS system shall support at least the following data displayed at the BDS display unit and through outputs to the radar display:*
- (a) Position (latitude/longitude): to at least four (4) decimal points;*
- (b) Horizontal Position accuracy (at speed of 15kt): less than or equal to 10m;*
- (c) Course: 1°resolution;*
- (d) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits;*
- (e) Date and time: selectable as GMT or local mode; and*
- (f) Satellite status information.*

Should read as

9.7.3 *The BDS shall consist of the following:*

- (a) 7" (or larger size as agreed by GNC and user Department) ultra-bright high contrast colour LCD display;*
- (b) Keyboard;*
- (c) BDS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;*
- (d) Capable of integrating with secure AIS, radar, ECDIS;*
- (e) The BDS antenna/receiver shall be connected to the radar for the provision of BDS-related data, such as position fix, time, speed over ground and course over ground;*
- (f) The BDS system shall support Serial NMEA 0183 format; and*
- (g) The BDS system shall support at least the following data displayed at the BDS display unit and through outputs to the radar display:*
- (i) Position (latitude/longitude): to at least four (4) decimal points;*
- (ii) Horizontal **position** accuracy (at speed of 15kt): less than or equal to 10m;*
- (iii) Course: 1°resolution;*
- (iv) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits;*
- (v) Date and time: selectable as GMT or local mode; and*
- (vi) Satellite status information.*

(xii) Original Clause 12.7.3 of Part VII – Technical Specifications:

12.7.3 *The tank shall be constructed from 316L stainless steel or an equivalent higher-grade material to ensure enhanced safety, durability, and corrosion resistance. Each independent stainless steel methanol storage tank installed on the vessel shall be accompanied by a marine product*

certificate of conformity issued be accompanied by a marine product certificate of conformity issued by the RO, to the satisfaction of the RO, to the satisfaction of the GNC.

Should read as

*12.7.3 The tank shall be constructed from 316L stainless steel or an equivalent higher-grade material to ensure enhanced safety, durability, and corrosion resistance. Each independent stainless steel methanol storage tank installed on the **Vessel** shall be accompanied by a marine product certificate of conformity issued by the RO, **and** to the satisfaction of the **RO and** GNC.*

(xiii) Original Clause 12.9.2 of Part VII – Technical Specifications:

12.9.2 The system shall integrate leak detection, disconnection monitoring, vapour monitoring, fire detection, safety controls, alarms, and automatic shutdowns. Each independent safety protection monitoring cabinets equipped within the system shall be accompanied by a marine product certificate of conformity issued be accompanied by the RO, to the satisfaction of the RO, to the satisfaction of the GNC.

Should read as

*12.9.2 The system shall integrate leak detection, disconnection monitoring, vapour monitoring, fire detection, safety controls, alarms, and automatic shutdowns. Each independent safety protection monitoring cabinets equipped within the system shall be accompanied by a marine product certificate of conformity issued by the RO, **and** to the satisfaction of the **RO and** GNC.*

(xiv) Original Clause 12.9.23 of Part VII – Technical Specifications:

12.9.23 The control panel of methanol fuel electronic control system includes the following functions, but is not limited to:

- (a) High-level fuel tank;*
- (b) High-high-level fuel tank;*
- (c) Any failures of inert gas seal in annular space of double walled pipes;*
- (d) Gas detection in the annular space of the double wall bunkering line (if any);*
- (e) Loss of ventilation in ventilated areas;*
- (f) Manual shutdown;*

- (g) *Liquid methanol detection in the annular space of the double walled bunkering line;*
- (h) *Vapour detection in annular spaces of double walled pipes;*
- (i) *Vapour detection in cofferdams surrounding fuel tanks. One detector giving 20% of LEL;*
- (j) *Vapour detection in airlock;*
- (k) *Vapour detection in cofferdams (if any) and other protective spaces surrounding fuel tanks. Two detectors giving 40% of LEL;*
- (l) *Vapour detection in ducts around double walled pipes, 20% of LEL;*
- (m) *Vapour detection in ducts around double walled pipes, 20% of LEL;*
- (n) *Liquid leak detection in annular space of double walled pipes;*
- (o) *Liquid ...*

Should read as

12.9.23 The control panel of methanol fuel electronic control system includes the following functions, but is not limited to:

- (a) *High-level fuel tank;*
- (b) *High-high-level fuel tank;*
- (c) *Any failures of inert gas seal in annular space of double walled pipes;*
- (d) *Gas detection in the annular space of the double wall bunkering line (if any);*
- (e) *Loss of ventilation in ventilated areas;*
- (f) *Manual shutdown;*
- (g) *Liquid methanol detection in the annular space of the double walled bunkering line;*
- (h) *Vapour detection in annular spaces of double walled pipes;*
- (i) *Vapour detection in cofferdams (if any) and other protective spaces surrounding fuel tanks. One detector giving 20% of LEL;*
- (j) *Vapour detection in airlock;*
- (k) *Vapour detection in cofferdams (if any) and other protective spaces surrounding fuel tanks. Two detectors giving 40% of LEL;*
- (l) *Vapour detection in ducts around double walled pipes, 20% of LEL;*
- (m) *Vapour detection in ducts around double walled pipes. Two detectors giving 40% of*

LEL;

- (n) *Liquid leak detection in annular space of double walled pipes;*
- (o) *Liquid ...*

(xv) Original Clause 1.2 of Annex 1 to Part VII – Technical Specifications:

- 1.2 *The Government reserves all rights and claims against the Contractor in the event that any warranty claim has not been handled in accordance with the terms of the Contract including this Annex and the Detailed Procedures as mentioned in Paragraph 1.6 below. Furthermore, even it is agreed between the Government and the Contractor after the necessary joint inspection and investigation that certain damage to the Vessel or any part thereof falls outside the scope of the Warranty Services, if so requested by the Government, the Contractor and its local agent shall still be responsible for the repair of such damage on the same terms as set out in this Annex 1 except that it shall be at the cost of the Government. Should the Contractor and its local agent refuse to do so or provide an unreasonable quotation of the repair cost, without prejudice to the rights and claims against them, the Government shall have the full right to appoint another contractor for the repair, and the Contractor agrees that the Warranty Period and the Warranty Services for the relevant Warranty Item(s) shall not be violated or affected notwithstanding such appointment.*

Should read as

- 1.2 *The Government reserves all rights and claims against the Contractor in the event that any warranty claim has not been handled in accordance with the terms of the Contract including this Annex and the Detailed Procedures as mentioned in Paragraph 1.6 below. Furthermore, even it is agreed between the Government and the **Contractor** after the necessary joint inspection and investigation that certain damage to the Vessel or any part thereof falls outside the scope of the Warranty Services, if so requested by the Government, the Contractor and its local agent shall still be responsible for the repair of such damage on the same terms as set out in this Annex 1 except that it shall be at the cost of the Government. Should the Contractor and its local agent refuse to do so or provide an unreasonable quotation of the repair cost, without prejudice to the rights and claims against them, the Government shall have the full right to appoint another contractor for the repair, and the Contractor agrees that the Warranty Period and the Warranty Services for the relevant Warranty Item(s) shall not be violated or affected notwithstanding such appointment.*

(xvi) Original Clause 1.7.1 of Annex 1 to Part VII – Technical Specifications:

1.7 Throughout the Warranty Period, the Contractor shall be responsible for the provision of free of charge corrective maintenance and rectification of all defects in all and any of the Warranty Items including repair and replacement as necessary. This shall, at no cost to the Government, include Warranty Services to be performed by the Contractor described in the following sub-paragraphs:

1.7.1 To attend to the Vessel for inspection and repair within two (2) working days (excluding Hong Kong public holidays) of receiving the report of a fault (“fault report”) and to take immediate action to rectify the defect after inspection. Unless otherwise agreed by the Government, all corrective maintenance and rectification must be effected within three (3) working days after the fault report is first issued. The MD must be informed of what corrective maintenance and rectification actions have been taken within five (5) working days of receiving the relevant fault report.

Should read as

1.7 Throughout the Warranty Period, the Contractor shall be responsible for the provision of free of charge corrective maintenance and rectification of all defects in all and any of the Warranty Items including repair and replacement as necessary. This shall, at no cost to the Government, include Warranty Services to be performed by the Contractor described in the following sub-paragraphs:

*1.7.1 To attend to the Vessel for inspection and repair within **one (1) working day** of receiving the report of a fault (“fault report”) and to take immediate action to rectify the defect after inspection. Unless otherwise agreed by the Government, all corrective maintenance and rectification must be effected within **two (2) working days** after the fault report is first issued. The MD must be informed of what corrective maintenance and rectification actions have been taken within **three (3) working days** of receiving the relevant fault report.*

(xvii) Original Clause 2.2.2 of Annex 1 to Part VII – Technical Specifications:

2.2.2 Engines and Gearboxes

- (c) Renew the lubricating oil and replace the filters for the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and top up the engine coolant (if applicable) as per the manufacturer's recommendations;*
- (d) Clean all the engine air filters and change the filter elements;*
- (e) Change all fuel/water separators elements and fuel filters for all engines;*
- (f) Flush through the cooling system of the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and renew all zinc anodes if provided;*
- (g) Check all the engines' belts and adjust or renew if necessary;*
- (h) Check tappet clearances for the inlet and exhaust valves, ignition timing and idle speed and adjust if necessary;*
- (i) Conduct function tests for the engines' protection system and their associated sensors, gauges and other measuring devices;*
- (j) Disconnect and remove all engines and gearboxes sea water pipes (suction & discharge) for inspection, and clear off marine growth and obstructive materials in all pipes and fittings;*
- (k) Repair all damages and leakages in the pipelines; and*
- (l) Any other work required or recommended by the engine manufacturer.*

All of the work listed at Paragraphs 2.2.1 to 2.2.2 shall be carried out by the manufacturer's authorised agent/dealer. All the work procedures and the spare parts used shall comply with the manufacturer's specifications and requirements.

Should read as

2.2.2 Engines and Gearboxes

- (a) Renew the lubricating oil and replace the filters for the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and top up the engine coolant (if applicable) as per the manufacturer's recommendations;*
- (b) Clean all the engine air filters and change the filter elements;*
- (c) Change all fuel/water separators elements and fuel filters for all engines;*
- (d) Flush through the cooling system of the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and renew all zinc anodes if provided;*

- (e) Check all the engines' belts and adjust or renew if necessary;*
- (f) Check tappet clearances for the inlet and exhaust valves, ignition timing and idle speed and adjust if necessary;*
- (g) Conduct function tests for the engines' protection system and their associated sensors, gauges and other measuring devices;*
- (h) Disconnect and remove all engines and gearboxes sea water pipes (suction & discharge) for inspection, and clear off marine growth and obstructive materials in all pipes and fittings;*
- (i) Repair all damages and leakages in the pipelines; and*
- (j) Any other work required or recommended by the engine manufacturer.*

All of the work listed at Paragraphs 2.2.2(a) to (j) shall be carried out by the manufacturer's authorised agent/dealer. All the work procedures and the spare parts used shall comply with the manufacturer's specifications and requirements.

The revised pages (with an indication of "(Revised on 10 July 2026) Addendum No. 1" at the header) are attached for replacement. Please replace the relevant pages by the revised ones attached and submit your tender together with the revised pages.

The above amendments shall form part of the Tender Documents. Apart from the above, all other terms and conditions of the Tender Documents shall remain unchanged.

Interested tenderers shall submit their Tenders before the Tender Closing Time of 12:00 noon (Hong Kong time) on **25 September 2026** in one of the methods stipulated in Part I – Lodging of Tender. A late Tender or a Tender not submitted in accordance with the stipulated requirements in the Tender Documents **will not be considered further.**

In case an interested tenderer has already submitted a Tender but wish to make an amendment, it can do so by submitting a revised offer in accordance with the manner stipulated in the Tender Documents.

Schedule 10 – Claim of Tenderer’s Experience

Part A – Requirements of Submissions

1. The Tenderer shall provide in the relevant table below information of vessel(s) in vessel design and construction project (each a “vessel project” (in upper or lower case)) as further specified in Part B of the Marking Scheme in Annex D (Marking Scheme) to Part II – Conditions to Tender together with the required supporting documents.
2. For each vessel project to be evaluated under assessment criteria in Part (B) of the Marking Scheme, the supporting documents shall include relevant contracts, General Arrangement Plan, and acceptance documents or other documents evidencing of acceptance by the purchaser of the vessel, which the vessel project relates to at the satisfaction of the Government. Acceptance documents or other document evidencing acceptance must have been signed by the relevant purchaser of the vessel or a classification society. Acceptance documents issued or signed solely by the Tenderer are not acceptable.
3. **If the Tenderer fails to provide the information in relation to a vessel project before the Tender Closing Date or fails to provide supporting documents as mentioned above before the Tender Closing Date or by the time stipulated by the Government after the Tender Closing Date; or if the supporting documents do not prove the claimed experience, no mark will be given to the Tenderer for the relevant Assessment Criterion.**
4. **Where it is a party to a joint venture which has performed a vessel project, the name of the joint venture party shall be identified clearly and references herein to “Tenderer” or “I/we” shall mean such party.**
5. **All references to Length Overall (LOA) shall have the meaning given in Paragraph 2.4 of Part VII.**

- (i) The GPS or Differential Global Positioning System (DGPS) which is properly calibrated (with supporting calibration documents) and installed onboard the Vessel and is acceptable to GNC; or other speed measuring methods that are acceptable to GNC; or
 - (ii) The Contractor shall provide that the speed measuring device has been calibrated by a certified body in Hong Kong acceptable to GNC; or
 - (iii) Global Positioning System (“GPS”) supplied by the Government.
- (h) Not used.
- (i) The instrument used in measuring the Propeller Shaft Power for the Official Speed Trial shall be provided by the Contractor and shall be able to measure both port and starboard Propeller Shaft Power simultaneously. The Propeller Shaft Power measuring device shall have been calibrated by a certified body in Hong Kong acceptable to GNC.
 - (j) The speed, time of the day, engine running conditions, sea condition, etc., shall be properly recorded by the Contractor, and signed as witnessed by GNC surveyor (or GNC representatives) during the Official Sea Trial. A copy of the Official Sea Trial Report as required in Paragraph 1.8.6 below shall be given to GNC before Delivery Acceptance.
 - (k) Upon successful completion of the Official Speed Trial in Hong Kong, the Contractor shall arrange GNC officers to carry out hull bottom inspection on the Vessel to check for any hull damage before delivery.

1.8.6 The following tests shall be conducted as part of the Technical Acceptance for the Vessel, and the testing results shall be recorded and form part of the Official Sea Trial Report. The applicable conditions under which each of the tests specified below shall be conducted are further set out in the relevant paragraph of Annex 5 to this Part:

(a) Endurance Test

The Endurance Test shall be carried out for different motors loading and speeds to obtain the speed/fuel consumption curves (or data) for the Vessel, with the motors operating within the manufacturer recommended engine operating conditions. The test results shall be recorded in accordance with the requirements stipulated in Annex 6 to this Part VII. The report submitted shall include a curve or curves showing ship speed versus propulsion motors rpm and power, with particulars of the Vessel loading and displacement in the test(s).

Throughout the test period, the machinery and equipment shall operate without failure, damage, malfunction, or abnormal occurrences, and shall remain in fully functional condition without any damage or defect upon completion of the test.

The test shall be carried out into 2 parts:

- (i) 2 hours in Methanol Mode (i.e. all engine operates primarily on methanol with diesel used only as pilot fuel for ignition. Methanol provides the main energy input, while diesel injection quantity is minimized to maintain stable combustion.); and
 - (ii) 2 hours in Diesel Mode (i.e. all engine operates solely on diesel fuel. All combustion is initiated and sustained by direct injection of diesel without methanol supplementation.).
- (b) Manoeuvrability Test

Forward turning circle tests to port and starboard sides shall be carried out with:

3.3.10 Intact Stability Criteria

The Vessel shall be considered satisfactory if either the following (a) or (b) shall be complied, [E]

- (a) The Vessel shall comply fully with the intact stability criteria stipulated in 2008 IS Code (i.e. the International Code on Intact Stability, 2008, adopted by IMO resolution MSC.267(85) in the version as at the Contract Date; [E]

OR

- (b) The Vessel shall comply fully with related rules and regulations in stability requirements of the RO based on the version as at the Contract Date. [E]

3.3.11 Damaged Stability Criteria

- (a) The Vessel shall comply fully with the damaged stability criteria stipulated in Chapter 12 of The WorkBoat code from Maritime & Coastguard Agency in UK (including the compliance of Option 1 in 12B.1.2, and taking into account of free surface effects) in the version as at the Contract Date. [E]
- (b) For the purpose of making damage stability calculations, the volume and surface permeability shall comply with the requirements of RO and/or the WorkBoat code.
- (c) Suitable watertight transverse bulkheads shall be arranged to maintain the stability of the Vessel when any one watertight compartment under deck damaged and flooded, and when there is asymmetric flooding to any one of the under deck compartments.
- (d) The residual stability of the Vessel in the above mentioned damage condition shall be sufficient to maintain adequate stability of the Vessel at sea in any one of operational modes mentioned in the Part VII.
- (e) The residual stability of the Vessel shall be complied with The WorkBoat code not limited to the following criteria, after taking into account of free surface effects, for loading conditions as specified above.
- (i) The angle of equilibrium does not exceed 7 degrees from the upright.
 - (ii) The resulting righting lever curve has a range to the downflooding angle of at least 15 degrees beyond the angle of equilibrium.
 - (iii) The maximum righting lever within that range is not less than 100mm.
 - (iv) The area under the curve is not less than 0.015 metre radians.
 - (v) This damage should not cause the vessel to float at a waterline less than 75mm from the weatherdeck at any point.
- (f) The opening(s) to determine the down-flooding angle(s) shall first be agreed by GNC before carrying out the damaged stability calculations. The permeability of each flooded compartment for the stability calculations shall first be agreed by GNC.
- (g) The damage stability calculation shall be produced and has obtained the approval from RO or individual verified/certified body acceptable to GNC before submitting to GNC for further comments.

3.4 Cathodic Protection and Painting

- 3.4.1** Paint shall be used on surfaces and any parts of the hull, deck, machinery and fittings as directed by the GNC and shall not have adverse effects on the environment and/or health of persons onboard.

Chapter 7 Machinery

7.1 General provisions

- 7.1.1** The Vessel is for use in Hong Kong and shall be equipped with methanol-diesel dual electric generator sets and electric propulsion drives system. The main generators, gearboxes with clutches, electric motors and any other machinery offered shall be acceptable to GNC.
- 7.1.2** The main machinery stated in Paragraph 7.1.1 above shall be standard products with good support for spare parts and after-sale services locally in Hong Kong.
- 7.1.3** The manufacturers and makers of engines shall be acceptable to GNC. In addition, the support of local agents shall include supplying brand new proposed main engines, electric generators and other machinery for five years after Vessel delivery.
- 7.1.4** The dual-fuel (“Methanol-Diesel”) electric system shall comprise with the methanol-diesel dual-fuel generator sets mentioned in Paragraph 7.2.1 in this Part VII. The dual-fuel electric system shall also include the Main Switchboard, Main Propulsion Remote Control System, Power Management System (“PMS”), Monitoring and Alarm System (“MAS”), Variable-Frequency Drive (“VFD”) or Frequency Converter and Propulsion Motor(s) (collectively “electric generator sets” as more particularly specified in Paragraph 7.4 below). All components shall be designed and constructed in accordance with the latest edition of the rules and regulations of the RO and shall be issued with relevant certificate by the RO as specified in Schedule 9.
- 7.1.5** The Vessel shall be equipped and fitted with all machinery described in this Chapter 12 of this Part VII each complying with the specifications set out in this Chapter for such machinery. The Spare Parts to be provided shall be the same model as supplied for the Vessel and shall equally comply with all specifications set out in this Chapter.
- 7.1.6** Two (2) accesses with reasonable separation shall be provided for the engine room, one (1) of which (via watertight hatch with a suitable coaming) shall be from the main deck. The design of the engine room, steering gear and tank space layout shall be approved by an RO and agreed by GNC. The machinery, associated piping systems and fittings relating to the main propulsion motors and electric generator sets shall be of a design and construction adequate for the service for which they are intended and shall be so installed and protected as to reduce to a minimum any danger to persons on board, due regard being paid to moving parts, hot surfaces and other hazards. The design shall have regard to materials used in construction, the purpose for which the equipment is intended, the working conditions to which it will be subjected and the environmental conditions on board. The engine room access passage shall keep one (1) main passage (not less than 600mm) and try to ensure the maintenance space.
- 7.1.7** Sufficient space and headroom in the vicinity of the machinery shall be provided for the local operation, inspection and routine maintenance of all machinery. Procedures and sequences for the complete removal of major items, such as the main electric generator set, gearboxes, propulsion motors, and methanol storage tanks, shall be carefully designed to ensure that these items/equipment can be removed from the vessel for maintenance in a practical and feasible manner, thereby avoiding the cutting of major structures of the deck or shell plate.
- 7.1.8** All parts of machinery, hydraulic, control and other systems and their associated fittings which are under internal pressure shall be subject to appropriate tests including a pressure test before being put into service for the first time.
- 7.1.9** Provision shall be made to facilitate cleaning, inspection and maintenance of main electric generator sets, propulsion motors, fire pumps etc. and their associated piping and equipment.

Figure: Single-line diagram of power system

- 7.2.2** The frequency converter for main propulsion system shall be of the active front end (“AFE”) type.
- 7.2.3** The methanol-diesel dual-power system shall use fixed/constant speed generators to supply the required electrical power to the Vessel’s switchboard.
- 7.2.4** Each main propulsion drive system shall be composed of suitably sized variable-frequency drive or frequency converter and the propulsion motor. The propulsion motor is controlled by the variable-frequency drive or frequency converter providing sufficient torque from zero to nominal speed in either direction. The automation system includes a propulsion remote control system, power management system (“PMS”) and Monitoring and Alarm System.
- 7.2.5** The propulsion drive devices include two (2) main propulsion motors and gearboxes with clutches. The automatic control system includes propulsion system controls, instrumentation and controls, power management system, monitoring and alarm system.
- 7.2.6** The vessel shall have three (3) control modes for operation:
- (a) Hotel Mode – demand for the hotel load and the propulsion motor shall be in a state of ready standby at all times.
 - (b) Cruising Mode –vessel speed of 5 to 6 knots; and
 - (c) Full Speed Mode – minimum highest achievable contract speed as specified in Paragraph 2.3.1 of this Part VII.
- 7.2.7** The Contractor shall provide a detailed description of the main propulsion system, including the details of the total propulsion power and the control of three (3) modes of operation outlined in Paragraph 7.2.6 in this Part VII. The system will ensure that operational hours are distributed across the various generator sets and failure mode effect analysis (“FMEA”) of the system.
- 7.2.8** The propulsion power of the vessel must not experience a single–point failure that would cause a total failure of the entire power system. The independence/redundancy of the power system can be considered in conjunction with FMEA. FMEA must be approval from RO and the acceptance of GNC prior the pre-shipment trial.
- 7.2.9** The Control System shall have drive control software with system protective functions to detect and prevent the supply network overload, and power limit function to protect against unsafe operation of the system and other system failures. Drive system protection functions act against detected system malfunction or component failures; e.g. low lubrication pressure or high jacket water temperature on any one of the running generator, etc. The protection shall be divided into alarms, trips, interlocking, and power limitation functions.
- 7.2.10** The Contractor shall include in the maintenance plan detailed removal routes for the methanol-diesel dual-fuel engines, electrical motors, methanol storage tanks, and reduction gearboxes (if fitted), specifying procedures for servicing or replacement from the hull. The routes shall meet GNC’s satisfaction.
- 7.2.11** The main propulsion system shall be capable of manually and automatically starting individual or multiple generators. During automatic start-up, the system shall diagnose the status of all generators prior to initiating any start. The starting sequence shall be based on ascending running hours, with the generator having the least operating hours prioritized to start first.
- 7.2.12** Flexible mounting of engines shall be used for controlling the noise levels in wheelhouse compartments not to exceed 85 dB (A).
- 7.2.13** The vessel shall be equipped with an Exhaust Emission Monitoring System to measure emissions

7.16.15 Diesel fuel discharge connections to be arranged on the main deck, shall have connection at the lowest location of the diesel fuel tank.

7.17 Fresh Water System

7.17.1 Fresh water tank arrangement

- (a) One (1) fresh water tank with a total capacity of not less than 1,000 litres shall be arranged in the Vessel to supply fresh water to the main deck, under-deck and crew space. If it is an independent fresh water tank, it shall be made of 316 L stainless steel material.
- (b) It shall be installed in the machine space as indicated on the Guidance General Arrangement Plan.

7.17.2 The fresh water shall be supplied by a fresh water pump to achieve a pressure at the tap located at wheelhouse, main deck and under-deck to GNC's satisfaction. This system acts as the potable fresh water system and a hose which freely reaches all parts of the Vessel shall also be provided.

7.17.3 Marine grade stainless steel 316L shall be used for fresh water tank. The fresh water tank shall be flushed clean and inspected before installation and delivery of Vessel.

7.17.4 The fresh water tank shall be designed to easily accessible for maintenance. It shall also be arranged with its own fill and vent pipes with gauze to prevent ingress of material / bugs to the tank. The freshwater tank shall be fitted with the following:

- (a) Inspection / cleaning access cover;
- (b) Filling / sounding pipe; the fresh water filling port shall be kept sufficiently far from the diesel fuel filling port to reduce the risk of confusion. Clear operational instructions shall be provided at the both filling stations to prevent incorrect operation.
- (c) Air pipe; and
- (d) A tank content level gauge in litres and low level alarm shall be fitted on the wheelhouse control station.

7.17.5 If the tank is designed to be integral with the hull, during installation, it shall be ensured that the loads due to the mass of the full tank are safely induced into the structure.

7.17.6 The thickness shall sustain the loads due to the mass of the full tank with due consideration given to upward and downward acceleration due to the Vessel's movements at maximum speed in the sea without damaging the integrity of the tank and ship's structure.

7.17.7 The freshwater tank shall not be directly adjacent to any other tanks carrying liquid of any kind.

7.17.8 The freshwater tank shall be tested without leakage by a head of water equal to the maximum to which the tank may be subject, but not less than 2.5 m above the top of the tank. The static test pressure shall be applied for 5 minutes without pressure drop.

7.17.9 A capacity indicator calibrated in litres shall be provided.

7.17.10 The impressed unit shall be provided with a starter, pressure switch, pressure gauge, relief valve and suction valve. The freshwater pump shall maintain the pressure automatically.

7.17.11 Domestic freshwater piping shall be made of copper or stainless steel 316L. Certificate of piping material shall be submitted before the delivery of the Vessel. The welding joints of the domestic fresh water piping's shall be free from lead. The domestic fresh water from the fresh water tank shall be free from any substance harmful to health and shall comply with the Government requirements for domestic water.

7.17.12 Cold freshwater taps completed with PVC braided / reinforced transparent hoses shall be fitted on the main deck forward and aft, crew space and wheelhouse top to provide a rinse off facility for cleansing purposes.

7.18 Bilge System

7.18.1 The Vessel shall be fitted with a bilge system to the requirements of the RO.

7.18.2 Two (2) electric bilge pumps are installed in the engine room to pump bilge water in the engine room, steering gear room, machine space and empty tank.

7.18.3 A jet pump for pumping bilge water from the bow is installed.

7.18.4 Include the chain locker shall be arranged a suitable bilge water suction device shall be provided for each compartments below the main deck.

7.18.5 Include the chain locker shall be equipped with bilge water alarms for each compartments below the main deck. A bilge audible and visual alarm panel shall be fitted in the wheelhouse control station for all subdivision compartment spaces.

7.18.6 When the Vessel is afloat and unmanned, the bilge audible and visual alarm system shall continue to function. When the audible and visual alarm is not acknowledged after a time period such as 5 minutes (can be adjusted), the audible and visual alarm shall be extended externally to an audible and visual alarm fitted on mast to bring the attention of the persons ashore or the guard of the Government Dockyard. The additional protection shall be able to be turned on and off when required.

7.18.7 A bilge water holding tank of capacity according to the requirements of RO shall be provided.

7.18.8 The bilge of the engine room, machine space and steering gear room shall lead to a bilge water holding tank. An electric motor-driven pump fitted in engine room with associated piping shall be provided in pumping out to the bilge water holding tank. An electric motor-driven Bilge water pump can pump out bilge water direct overboard in case of emergency affecting the safety of the Vessel.

7.18.9 Bilge piping shall be made of nickel-copper.

7.18.10 One (1) 24V DC portable bilge pump shall be provided.

7.19 Seawater System

7.19.1 All sea valves shall be compatible with the hull material, valves and flanges connected to the sea chests shall be tested according to RO Requirements.

7.19.2 It is desirable that sea chests provided for the main and auxiliary machinery should be installed in the vicinity of their respective seawater pump suction but with adequate distance between each other to avoid water flow disturbance. **[D]**

7.19.3 Seawater piping shall be made of nickel-copper. A suitable stF (rainer with isolation valves and air vent shall be fitted to each seawater system. Due consideration shall also be given for quick and easy access to the seawater strainers.

7.19.4 The sea chest for sea water inlet is to be designed for open up easily to clear debris at sea without moving out the attached ventilation pipe. The thickness of the side plates and top plates are to be in accordance with the RO requirements. The structure of sea chest shall be independent of the engine girders, bottom longitudinals and bottom transverses as far as possible.

- | | | |
|--------|-----------------------------|--|
| (vii) | Readout of selected target: | Range, bearing, course, speed, CPA (Closest Point of Approach), TCPA (Time to Closest Point of Approach) |
| (viii) | Target vector: | Relative, true |
| (ix) | Intercept mode: | Automatically calculate intercept course and Time to Go (TTG) to tracked target |
| (x) | Adjustable warning limit: | warning for CPA to a desired adjustable limit |
- (g) The crew operator shall be able to select the following modes of presentation at the radar display:
- (i) radar image only,
 - (ii) plotter image only, or
 - (iii) Plotter image overlaid with radar image.

9.6 Differential Global Positioning System (“DGPS”)

9.6.1 The Contractor shall supply and install one (1) set of DGPS which fulfils the following general requirements.

9.6.2 The DGPS shall integrate with radars, ECDIS, for providing real time Vessel position and clock signal in the NMEA 0183 and NMEA 2000 format. The antennas for the DGPS shall be installed on the compass deck.

9.6.3 The DGPS shall consist of the following:

- (a) 7” (or larger size as agreed by MD) ultra-bright high contrast colour LCD display;
- (b) Touch screen and keyboard;
- (c) DGPS to be compatible with GPS and GLONASS networks;
- (d) DGPS to have receiver autonomous integrity monitoring (RAIM) functionality to alert when position accuracy is below user set limit;
- (e) DGPS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;
- (f) Capable of integrating with secure AIS, radar, ECDIS;
- (g) The DGPS antenna/receiver shall be connected to the radar for the provision of GPS-related data, such as position fix, time, speed over ground and course over ground;
- (h) The GPS system shall be fully compatible with the radar;
- (i) The GPS system shall support Serial NMEA 0183, Serial 26-pin D-sub, Serial 9-wire RS232, Serial 3-wire RS232 and Ethernet (NMEA 2000); and
- (j) The GPS system shall support at least the following data displayed at the GPS display unit and through outputs to the radar display:
 - (i) Position (latitude/longitude): to at least four (4) decimal points;

- (ii) Horizontal position accuracy (at speed of 15kt): less than or equal to 10m;
- (iii) Course: 1° resolution;
- (iv) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits;
- (v) Date and time: selectable as GMT or local mode; and
- (vi) Satellite status information.

9.6.4 The DGPS's antenna and receiver shall fulfil the following minimum technical requirements:

- (a) Receiver Type: 8 or more channel parallel receiver
- (b) Receiving Frequency and Code: 1,575.42 MHz (C/A code)
- (c) Position Accuracy: Within + or - 3 metres rms or better 95% of the time
- (d) Warm Start Time: Less than 30 seconds
- (e) Ambient temperature: 0°C to 55 °C or better
- (f) Antenna waterproofing: IPX7 or better

9.7 BeiDou Navigation System ("BDS")

9.7.1 The Contractor shall provide one (1) set BeiDou Navigation System.

9.7.2 The BDS shall integrate with radars, ECDIS, for providing real time Vessel position and clock signal in the NMEA 0183 format. The antennas for the BDS shall be installed on the compass deck.

9.7.3 The BDS shall consist of the following:

- (a) 7" (or larger size as agreed by GNC and user Department) ultra-bright high contrast colour LCD display;
- (b) Keyboard;
- (c) BDS to be displayed at Wheelhouse Control Station and at Navigation/Communications Console and anywhere else required by GNC;
- (d) Capable of integrating with secure AIS, radar, ECDIS;
- (e) The BDS antenna/receiver shall be connected to the radar for the provision of BDS-related data, such as position fix, time, speed over ground and course over ground;
- (f) The BDS system shall support Serial NMEA 0183 format; and
- (g) The BDS system shall support at least the following data displayed at the BDS display unit and through outputs to the radar display:
 - (i) Position (latitude/longitude): to at least four (4) decimal points;
 - (ii) Horizontal position accuracy (at speed of 15kt): less than or equal to 10m;
 - (iii) Course: 1° resolution;
 - (iv) Speed: 0.1 knot or 0.1 km/hour resolutions with at least three (3) digits;
 - (v) Date and time: selectable as GMT or local mode; and
 - (vi) Satellite status information.

9.7.4 The BDS' s antenna and receiver shall fulfil the following minimum technical requirements:

- (a) Position Accuracy: Within + or - 2.5 metres rms or better 95% of the time;
- (b) Warm Start Time: Less than 30 seconds;

- (c) All methanol fuel piping and tanks shall be electrically bonded to the ship's hull, maintaining electrical continuity across joints and fittings. The maximum resistance between piping and hull shall be 1 MΩ; and
- (d) Remote-controlled valves within the skid shall be operable via pneumatic or explosion-proof electric drives, suitable for the hazardous environment.

12.7 Methanol Storage System (“MSS”)

- 12.7.1** The Vessel shall be equipped with a Methanol Storage System (“MSS”), comprising the methanol storage tank and associated containment systems. The design shall ensure safety, durability, and compliant with requirements of the RO proposed in Schedule 9 of Part V. [E]
- 12.7.2** The Vessel shall be equipped with one (1) independent stainless steel methanol storage tank, located within underdeck compartments. The tank shall have a minimum capacity of 8 m³ or whichever larger in the calculation as specified in Paragraph 2.7.2 in this Part VII. .
- 12.7.3** The tank shall be constructed from 316L stainless steel or an equivalent higher-grade material to ensure enhanced safety, durability, and corrosion resistance. Each independent stainless steel methanol storage tank installed on the Vessel shall be accompanied by a marine product certificate of conformity issued by the RO, and to the satisfaction of the RO and GNC.
- 12.7.4** If multiple methanol storage tanks are provided for the vessel, all requirements outlined in this chapter, as well as applicable RO regulations, shall apply to each tank accordingly.
- 12.7.5** For Vessel requiring daily fuel storage, an additional tank may be provided, with capacity designed to satisfy operational needs and in compliance with RO requirements.
- 12.7.6** The tank(s) shall be designed for safe operation within the Vessel's environmental conditions and operational parameters, as determined by the manufacturer and approved by the RO.
- 12.7.7** The storage tank shall be fitted with pressure/vacuum (P/V) relief devices, the set points of which shall be determined based on the system design, standards, and manufacturer's recommendations, with a margin of at least 10% to ensure safety margins.
- 12.7.8** Rigid suction pipes shall be installed near the bottom of the tank to facilitate fuel transfer. Additionally, methanol fuel supply pump(s) shall be provided to transfer methanol between tanks as required. The pump(s) shall be strategically located at appropriate positions to ensure efficient and reliable fuel transfer.
- 12.7.9** Discharge valves with remote-operated quick-closing devices shall be installed for safety.
- 12.7.10** Inerting and atmosphere control systems shall be in accordance with relevant standards.
- 12.7.11** The design and safety considerations of methanol storage tank(s) shall encompass, but are not limited to, the following:-
 - (a) The tank shall be fitted with detection instruments, at least one for each of the following, including sensors for pressure, temperature, liquid level, and oxygen concentration;
 - (b) The methanol fuel preparation room shall house the methanol fuel supply unit, which shall be designed for secure and efficient methanol fuel handling;
 - (c) The tank and associated systems shall be designed to withstand pressure, vibration, shocks, corrosion, and movement encountered during normal operation and storage.
 - (d) The location of the tank shall be approved by the RO and GNC, ensuring safety and

12.9 Methanol Control, Monitoring and Safety Systems (“MCMS”)

12.9.1 The Vessel shall be equipped with a comprehensive Methanol Control Monitoring and Safety Systems (“MCMS”) to ensure safe operation, hazard mitigation, and environmental protection.

[E]

12.9.2 The system shall integrate leak detection, disconnection monitoring, vapour monitoring, fire detection, safety controls, alarms, and automatic shutdowns. Each independent safety protection monitoring cabinets equipped within the system shall be accompanied by a marine product certificate of conformity issued by the RO, and to the satisfaction of the RO and GNC.

12.9.3 The system shall comply with the provisions regarding the layout requirements for control, monitoring, and safety systems specified in MSC.1/Circ.1621 and by the RO, and shall provide support for the effective and safe operation of the fuel-using equipment covered in this chapter.

12.9.4 The methanol fuel safety functions shall be arranged in a dedicated fuel safety system, which shall be independent of the fuel control system. This independence shall cover the power supply as well as input and output signals.

12.9.5 The methanol fuel safety system shall be capable of automatically shutting down the methanol fuel supply system in the event of a system failure that violates the provisions of MSC.1/Circ.1621 and the relevant clauses of the RO regarding control, monitoring, and safety systems, as well as other failures that develop too rapidly to allow manual intervention.

12.9.6 The methanol fuel safety system shall be designed to include field instruments and shall be capable of preventing false shutdowns.

12.9.7 The core purpose of the MCMS shall be to control and reduce risks associated with methanol fuel, including low flash point, flammability, explosiveness, and toxicity. It shall facilitate real-time monitoring, intelligent analysis, and rapid response, ensuring safe operation across all fuel modes (fuel oil and methanol), particularly during fuel handling, storage, and usage.

12.9.8 Experience a single-point failure, the MCMS of the methanol fuel equipment shall ensure that the vessel does not experience unacceptable power loss.

12.9.9 The MCMS shall be equipped with Gas Detection and/ or Methanol Liquid Leak Detection systems. The number and installation locations of gas and/or liquid detectors in each space shall meet the requirements specified in MSC.1/Circ.1621 and the relevant provisions of the RO. Along with corresponding alarm functions, as follows:-

(a) Gas Detection:

- (i) At least one (1) methanol vapour sensor shall be installed in each area susceptible to vapour accumulation, including fuel tanks, containment systems, bunkering stations, fuel preparation rooms, and engine rooms.
- (ii) Detection thresholds shall be set at approximately 10-20% of the Lower Flammable Limit (“LFL”) for low-level alarms, and 30-50% of LFL for high-level alarms, which shall activate audible and visual alarms accordingly.
- (iii) In the event of high-level detection, linked controls such as emergency shutdown shall be automatically triggered.
- (iv) After assessment through risk analysis, the ventilation inlets of accommodation spaces and machinery spaces where fuel gas may be present.

and response.

- 12.9.21** The MCMS shall continuously record operational data for post-event analysis, diagnostics, and predictive maintenance, aiding crew awareness of system health.
- 12.9.22** The Vessel should be equipped with a methanol fuel electronic control system. The system shall include a fully enclosed, marine-grade steel control cabinet, protected against corrosion. The control unit shall be based on a Programmable Logic Controller (“PLC”) platform, processing all input signals and controlling outputs, which details monitoring of the methanol supply system. The electric control system shall operate with compressed air available on-board for around 0.7 MPa.
- 12.9.23** The control panel of methanol fuel electronic control system includes the following functions, but is not limited to:
- (a) High-level fuel tank;
 - (b) High-high-level fuel tank;
 - (c) Any failures of inert gas seal in annular space of double walled pipes;
 - (d) Gas detection in the annular space of the double wall bunkering line (if any);
 - (e) Loss of ventilation in ventilated areas;
 - (f) Manual shutdown;
 - (g) Liquid methanol detection in the annular space of the double walled bunkering line;
 - (h) Vapour detection in annular spaces of double walled pipes;
 - (i) Vapour detection in cofferdams (if any) and other protective spaces surrounding fuel tanks. One detector giving 20% of LEL;
 - (j) Vapour detection in airlock;
 - (k) Vapour detection in cofferdams (if any) and other protective spaces surrounding fuel tanks. Two detectors giving 40% of LEL;
 - (l) Vapour detection in ducts around double walled pipes, 20% of LEL;
 - (m) Vapour detection in ducts around double walled pipes. Two detectors giving 40% of LEL;
 - (n) Liquid leak detection in annular space of double walled pipes;
 - (o) Liquid leak detection in engine-room;
 - (p) Liquid leak detection in fuel preparation space; and
 - (q) Liquid leakage detection in cofferdams (if any) and other protective spaces surrounding fuel tanks.
- 12.9.24** A warning sign or notice board shall be permanently installed in methanol spaces, stating that lifting operations that may pose a hazard to fuel pipelines are not permitted while the engine is operating on fuel.
- 12.9.25** A sign shall be posted in a visible location in machinery spaces, stating that if methanol fuel supply is cut off due to fuel leakage, the fuel supply shall not be turned on until the leakage point is located and addressed.
- 12.9.26** A visible sign shall be posted at the control position of the methanol fuel supply pipeline shut-off valve, stating that if the fuel supply is cut off due to the activation of the automatic shut-off valve in the methanol fuel supply system, the fuel supply shall not be turned on until the cause of the shut-off is identified and necessary measures are taken.

Part VII - Annex 1 - Warranty Services and Guarantee Slipping

1 Warranty Services

- 1.1 The Contractor shall provide Warranty Services in relation to all aspects of the Vessel during the Warranty Period, including Guarantee Slipping as stipulated in this Annex. Both the Warranty Services and Guarantee Slipping shall be carried out locally in Hong Kong. If the Contractor appoints a local sub-contractor to perform the Warranty Services (hereinafter “local agent”), the Contractor shall ensure that the local agent appointed will perform the Warranty Services and Guarantee Slipping in full compliance with the requirements of the Contract including those as set out in this Annex 1. It must be emphasized that it is the Contractor’s responsibility to ensure the Warranty Services and Guarantee Slipping are performed in full compliance with the terms of the Contract. The Contractor shall arrange their own technical staff with all the necessary skills, qualifications and experiences to conduct the services. Unless the technical staff from the local agent meet all these requirements, the technical staff from the local agent shall not provide the required Warranty Services but those technical staff from the Contractor to travel to Hong Kong for providing the Warranty Services. The Contractor shall provide the curriculum vitae of the local agent’s engineers involved in providing the Warranty Services as part of the Deliverables to be provided as part of the Delivery Acceptance. The Government reserve the rights to reject any engineer whose qualification and experience are not acceptable to GNC and the Government reserves the right not to accept the Vessel.
- 1.2 The Government reserves all rights and claims against the Contractor in the event that any warranty claim has not been handled in accordance with the terms of the Contract including this Annex and the Detailed Procedures as mentioned in Paragraph 1.6 below. Furthermore, even it is agreed between the Government and the Contractor after the necessary joint inspection and investigation that certain damage to the Vessel or any part thereof falls outside the scope of the Warranty Services, if so requested by the Government, the Contractor and its local agent shall still be responsible for the repair of such damage on the same terms as set out in this Annex 1 except that it shall be at the cost of the Government. Should the Contractor and its local agent refuse to do so or provide an unreasonable quotation of the repair cost, without prejudice to the rights and claims against them, the Government shall have the full right to appoint another contractor for the repair, and the Contractor agrees that the Warranty Period and the Warranty Services for the relevant Warranty Item(s) shall not be violated or affected notwithstanding such appointment.
- 1.3 For the Equipment in respect of which the manufacturer/supplier does not offer a one-year free warranty on such equipment, the Contractor shall provide the Warranty Services throughout the Warranty Period at the Contractor’s own cost. For other loose equipment and installations, such as life-saving and firefighting equipment, etc., which are required to be serviced, inspected or renewed annually, the Contractor shall provide the servicing, inspection and renewal as per the manufacturer’s requirements of that equipment or installation throughout the Warranty Period applicable to such items.
- 1.4 During the Warranty Period, when the Vessel or any part thereof is handed over for the Warranty Services and/or Guarantee Slipping, the Contractor shall be responsible for the collection and due return of the Vessel in good order (including all freight from and to the Government Dockyard and insurance (as further mentioned below)). Should there be any loss or damage of the Vessel or any Warranty Item (as defined in Paragraph 1.5 below) caused by any reason whatsoever while the Vessel is in the possession or control of the Contractor (including even when the Vessel is at the Government Dockyard or a maintenance base of the user department) or at the shipyard of the Contractor or an authorised agent appointed by it, the Contractor shall pay for the cost for the loss or damage plus 20% as and for liquidated damages but not as a penalty. Throughout the Warranty Period, notwithstanding anything to the contrary in the Contract, the Vessel and all Warranty Items are deemed to be at the Contractor’s risks, and the Contractor shall insure and keep insured, at his own expense, a property insurance with the Government to be named as the sole payee, for an indemnity amount of not less than the purchase price of the Vessel plus 20% to protect the Government property against all risks. The Certificate of Insurance and evidence showing that the premium has been paid shall be available for inspection in advance. The Contractor shall provide this insurance policy before the commencement of the Warranty Services and/or Guarantee Slipping. Any excess payable under the insurance policy shall be borne by the Contractor.

1.5 Total Vessel Warranty

It is required that the Vessel is covered by the free of charge Warranty Services for one (1) year after the date of the issue of the unqualified Acceptance Certificate in respect of the Vessel. If there is more than one (1) Vessel, each such Vessel shall be covered in the aforesaid manner. The Warranty Services shall cover the entire Vessel and all its Equipment (including without limitation all Equipment specified in Schedules 6 and 7 in Part V and all Electronic Navigational Equipment as defined in relevant chapter(s) of Part VII), fittings and outfit and all Spare Parts (collectively, "Warranty Items") against defects in design, construction, workmanship or materials and against any non-compliance with any of the Product Warranties. The Warranty Services may be backed up by the Contractor using individual equipment suppliers/manufacturers' warranties but the Contractor shall remain solely liable to MD as a primary obligor to provide the Warranty Services regardless of the terms of the warranty including duration provided by such suppliers or manufacturers. Notwithstanding and without prejudice to the Contract on warranty obligations for the total Vessel, any individual equipment supplier/manufacturers' warranty extending beyond the one-year total Vessel warranty must be assigned to the Government as appropriate. In order not to violate the warranty of the engine(s), gearbox(es), propulsion system(s) and other major equipment, the Contractor shall also provide the corresponding periodic maintenance services based on the manufacturer(s)' manuals and recommendations within the Warranty Period at no extra cost to the Government.

1.6 Procedures for Warranty Claim

Without prejudice to the provisions of the Contract, detailed procedures for dealing with warranty claims must be proposed by the Contractor and agreed by MD before the issuance of the unqualified Acceptance Certificate of the Vessel ("Detailed Procedures"). These Detailed Procedures shall be agreed based on the following principles:

- 1.6.1 Any notification of claimed defect shall be sent from MD to the Contractor through a defined route.
- 1.6.2 There shall be a joint inspection and investigation to examine the defect and the Contractor shall propose the appropriate and necessary remedial action to the satisfaction of the Director.
- 1.6.3 The Contractor shall undertake on-site Warranty Services (including provision of all replacement Warranty Items, spare parts, labour, materials, test equipment, lifting, docking, and transportation) whether, at the option of the Government, the Vessel is berthed at the local agent's shipyard or in the Government Dockyard or maintenance bases of the user department. Taking the Vessel back to the shipyard of the Contractor (place of construction) should be avoided unless absolutely necessary.
- 1.6.4 Rectification of defects must have a minimum effect on the operation of the Vessel by the provision of on loan equipment if the anticipated repair time exceeds the time frame as specified in Paragraph 1.7.1 below. The proposed manner of the rectification must first be approved by the Government.

1.7 Throughout the Warranty Period, the Contractor shall be responsible for the provision of free of charge corrective maintenance and rectification of all defects in all and any of the Warranty Items including repair and replacement as necessary. This shall, at no cost to the Government, include Warranty Services to be performed by the Contractor described in the following sub-paragraphs:

- 1.7.1 To attend to the Vessel for inspection and repair within one (1) working day of receiving the report of a fault ("fault report") and to take immediate action to rectify the defect after inspection. Unless otherwise agreed by the Government, all corrective maintenance and rectification must be effected within two (2) working days after the fault report is first issued. The MD must be informed of what corrective maintenance and rectification actions have been taken within three (3) working days of receiving the relevant fault report.
- 1.7.2 To provide all necessary transport, replacement Equipment, spare parts, labour and materials, tools and testing instruments required for the corrective maintenance and rectification.
- 1.7.3 Any replacement item or part to be deployed shall originate from the Warranty Spare Parts or otherwise from the manufacturer of the original Warranty Item to be repaired of the same model

2 Guarantee Slipping

2.1 As stated in the section "Warranty" above, Guarantee Slipping shall be carried out at the end of the original Warranty Period (but if there is any extension of the Warranty Period for the entire Vessel, GNC has right to decide if the time of Guarantee Slipping should be upon the expiry of the original Warranty Period before any extension or upon the expiry of the extended Warranty Period).

2.2 At the Guarantee Slipping, the Contractor shall carry out the following work and provide all necessary materials, spare parts, labour and equipment in order to carry out such work:

2.2.1 Pre-guarantee slipping inspection and trial

- (a) Joint inspection with trial to confirm the list of guarantee slipping items; and
- (b) Collect vessel performance information beforehand for comparing when guarantee slipping completion.

2.2.2 Engines and Gearboxes

- (a) Renew the lubricating oil and replace the filters for the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and top up the engine coolant (if applicable) as per the manufacturer's recommendations;
- (b) Clean all the engine air filters and change the filter elements;
- (c) Change all fuel/water separators elements and fuel filters for all engines;
- (d) Flush through the cooling system of the propulsion engines/motors, generators set, outboard engines in ancillary boat (if applicable) and gearboxes and renew all zinc anodes if provided;
- (e) Check all the engines' belts and adjust or renew if necessary;
- (f) Check tappet clearances for the inlet and exhaust valves, ignition timing and idle speed and adjust if necessary;
- (g) Conduct function tests for the engines' protection system and their associated sensors, gauges and other measuring devices;
- (h) Disconnect and remove all engines and gearboxes sea water pipes (suction & discharge) for inspection, and clear off marine growth and obstructive materials in all pipes and fittings;
- (i) Repair all damages and leakages in the pipelines; and
- (j) Any other work required or recommended by the engine manufacturer.

All of the work listed at Paragraphs 2.2.2(a) to (j) shall be carried out by the manufacturer's authorised agent/dealer. All the work procedures and the spare parts used shall comply with the manufacturer's specifications and requirements.

2.2.3 Hull and Deck Items (where applicable):

(a) Paint Under the Water Line

- (i) Paint under the water line shall be checked by the paint manufacturer's representative for the effectiveness of one (1) year's protection against marine growth;
- (ii) The hull shall be cleaned and ready for inspection of paint damage;
- (iii) Damaged paint shall be repaired according to the paint/gelcoat manufacturer's procedures;
- (iv) After the repair of the damaged paint as specified at Paragraph 2.2.3(a)(iii) above, two coats of touch up primer and one (1) coat of touch up shall be applied; and
- (v) One touch up anti-fouling paint of finishing coat shall be applied to the damaged paint as specified at Paragraph 2.2.3(a)(iii) above.

(b) Paint Above the Water Line