

CCGS Cove Isle Dry-Docking 2022

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1.0 GENERAL NOTES

1.1 Identification

1.1.1 These General Notes describe the CCG requirements applicable to all accompanying Technical Specifications.

1.2 References

1.2.1 Applicable regulations and documentation:

FSSM Procedures	Title	Included Yes/No
7.A.1	Assessing Risk	
7.A.6	Vessel Maneuvering Data	
7.A.8	Stability	
7.B.2.	Fall Protection	
7.B.3	Entry Into Confined Spaces	
7.B.4	Hotwork	
7.B.5	Lockout and Tagout	
7.E.5	Handling, Storage & Disposal of Hazardous Material	
10.A.6	Paint and Other Coatings	
7.E.8	Use of Halocarbons	
7.F.12	Potable Water Quality	
10.A.7	Contractor Safety and Security	
Ship Specific	Vessel Specific - Asbestos Management Plan	
Publications		
TP3177E	Standard for the Control of Gas Hazards in Vessels to be Repaired or Altered	Available from Transport Canada
T127E	Transport Canada Marine Safety Electrical Standard	http://www.tc.gc.ca/en/g/marinesafety/tp-menu-515.htm
IEEE 45	Recommended Practice for Electrical Installation on Ships	ISBN 0-7381-3381-7
70-000-000-EU-JA-001	Specification for the Installation of Shipboard Electronic Equipment	Available from CCG/ITS
CSA W47.1	Certification of Companies for Fusion Welding of Steel Structures Division 2 Certification	Available from CSA

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CSA W47.2	Certification of Companies for Fusion Welding of Aluminum	Available from CSA
CSA W59	Welded Steel Construction – Metal Arc Welding	Available from CSA
CSA W59.2	Welded Aluminum Construction	Available from CSA
CT-043-EQ-EG-001-E	Welding Specification	CG Intranet
CAN/CGSB-3.517-2015	Diesel Fuel	http://ccinfoweb2.ccohs.ca/legislation/documents/stds/cgsb/galsd15e.pdf
Acts		
S.C. 2001, c-26	Canada Shipping Act	http://laws-lois.justice.gc.ca/eng/acts/C-10.15/page-1.html
R.S.C., 1985, c. L-2	Canada Labour Code	http://laws-lois.justice.gc.ca/eng/acts/L-2/index.html
Regulations		
SOR/2010-120	Maritime Occupational Health and Safety	http://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-120/
SOR/90-264	Marine Machinery Regulation	http://laws-lois.justice.gc.ca/eng/regulations/SOR-90-264/

1.3 Occupational Health and Safety

- 1.3.1 The Contractor and all sub-Contractors must follow Occupational Health and Safety (OHS) procedures in accordance with applicable federal and provincial OHS regulations ensuring that Contractor activities are carried out in a safe manner and do not endanger the safety of any personnel.
- 1.3.2 The Contractor and the Contractor's employees, including any sub-Contractors must attend a safety orientation meeting of the vessel prior to the commencement of any work in order to familiarize the Contractor's employees with ship specific hazards and permit systems for work protocols as well as procedures for Security, Hazard Prevention, Hazard Intervention and Pre-Job Safety Assessments. The

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Contractor must have access to an uncontrolled copy of the Fleet Safety and Security Manual.

1.3.3 The Contractor must comply with the Fleet Safety and Security Manual, DFO/5737 and shipboard work instructions in addition to the applicable Canada Labour Code regulations while performing work involving the following;

- Hot Work;
- Work Aloft;
- Confined Space Entry;
- Gas Freeing for Entry and Hot Work;
- Lock Out/Tag Out;
- Pre-Job Safety Assessments.

1.3.4 For the purpose of the Lock Out/Tag Out procedure the Contractor must supply locks and locking devices for the Contractor's employees in addition to those provided by the Chief Engineer for the ship's crew.

1.4 Access to Worksite

1.4.1 The Contractor must ensure the TA, CCG and PSPC staff has unrestricted access to the worksite at all times during the contract period.

1.5 Workplace Hazardous Materials Information System (WHIMS)

1.5.1 The Contractor must provide the TA with Material Safety Data Sheets (MSDS) for all Contractor supplied WHIMS controlled products.

1.5.2 The TA must provide the Contractor with access to MSD sheets for all controlled products on the ship for all specified work items.

1.6 Smoking in the WorkSpace

1.6.1 The Contractor must ensure compliance with the Non- Smokers' Health Act. The Contractor must ensure that every employer, and any person acting on behalf of an employer, must ensure that persons refrain from smoking in any workspace under the control of the employer. The Contractor must ensure that there is absolutely no smoking onboard the vessel.

1.7 Initial Vessel Condition Inspection and Vessel Condition Report

1.7.1 Before the Contractor starts any work on the vessel the Contractor's Quality Assurance Representative, the TA must walk through each space and area where work is to take place, including access and removal routes and areas adjacent to those where the work is to be done as a result of this specification. The Contractor's Quality Assurance Representative must take digital pictures of each area showing the

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outfit therein and download the photos in JPG format onto a USB portable drive. Each picture must be dated and labeled as to the location on the vessel.

- 1.7.2 The Contractor must issue a report stating the condition of all the inspected areas on the vessel and listing all the damages or deficiencies observed during the initial condition inspection. The report must be dated and signed by the Contractor's Quality Assurance representative. The report must be accompanied by the photos taken as per section 1.7.1.
- 1.7.3 The Vessel Condition Report as well as copies of this USB drive is to be provided to the TA for reference purposes within 48 hours of the start of work.

1.8 Hazard free and clean worksite

- 1.8.1 The Contractor, during the work period must maintain those areas of the vessel which Contractor personnel use to access those areas where work is to be undertaken, in a clean condition, free from debris and remove garbage daily.
- 1.8.2 Areas that pose a hazard as a result of the specification work are to be secured and clearly identified by the Contractor with signage to advise and protect all personnel from the hazard in accordance with applicable Canada Labour Code requirements.
- 1.8.3 Upon completion of this contract, the Contractor must be responsible for the removal of all garbage generated from the work of this specification and for returning the vessel to the state of cleanliness in which the vessel was at the start of the contract period.

1.9 Final Vessel Condition Inspection

- 1.9.1 Once all known work and final clean-up has been completed the Contractor's QA Representative, the TA must perform a 'walk through' of the vessel to view all areas where work was performed by the Contractor. Any deficiencies or damage noted must be recorded and compared to the photos and if deemed to have been caused by the Contractor as a result of the work the damage must be repaired by the Contractor at no cost to the Coast Guard.

1.10 Fire Protection

- 1.10.1 The Contractor must ensure the isolation, removal and installation of fire detection and suppression systems or any components thereof, is performed by a qualified technician. When the fire detection or fire suppression system is deactivated or disabled by the Contractor during the contract, the system(s) must be recertified by a qualified technician

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as fully functional. A signed and dated original copy of the certificate must be delivered to the TA before the end of the contract.

1.10.2 The Contractor must be responsible for fire protection and fire response on the ship at all time during contract duration

1.10.3 The Contractor must always ensure protection against fire, including when working on the ship's fire detection and / or suppression system(s). This may be accomplished as suggested below and only with the written permission of the TA:

- Disabling only one portion of a system at a time;
- By maintaining system function using spares while work is in progress;
- Other means acceptable to and approved by the TA.

1.10.4 The Contractor must note that failure to take the necessary precautions while performing work on the vessel's fire suppression system(s) could result in the accidental discharge of the fire suppression agent(s). The Contractor must recharge and certify at his cost, container(s) or systems that are discharged as a result of such work.

1.11 Touch-up / Disturbed Paint

1.11.1 Unless stated otherwise the Contractor must supply and apply two coats of marine primer compatible with the vessel's existing coating system to all new and/or disturbed metal surfaces.

1.11.2 The Contractor must prepare all new and disturbed steelwork to the paint manufacturer's standards prior to painting.

1.12 CCG Employees and Others on the Vessel

1.12.1 CCG / DFO employees and other personnel such as manufacturer's representatives and/or TCMS or Class surveyors may carry-out other work including work items not included in this specification, onboard the vessel during this work period. Every effort must be made by the TA to ensure this work and the associated inspections and/or surveys do not interfere with the Contractor's work. The Contractor must not be responsible for coordinating the related inspections or payment of inspection fees for this work unless otherwise specified.

1.12.2 The contractor must ensure to grant access to the contractors hired by CCG to perform the annual fire inspection as well as the Lifting devices and Tackle Gear Inspection. Those inspections will be coordinated by the TA to not interfere with the contractor's work.

1.13 Regulatory Inspections and/or Class Surveys

1.13.1 The Contractor must contact, coordinate, schedule and pay all regulatory inspections and/or class surveys by the applicable authority:

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i.e. TCMS, HC, Environment Canada or others as required by the specification. Any documentation generated by the above inspections and/or surveys to show that the inspections and/or surveys were conducted (i.e. original signed and dated certificates) must be provided to the TA.

- 1.13.2 The Contractor must not substitute inspection by the TA for the required regulatory inspections or class surveys. The Contractor must provide timely advance notification (minimum of 24 hours) of scheduled regulatory inspections and/or class surveys to the TA so they may witness the inspection.

1.14 Test Results and Data Book

- 1.14.1 The Contractor must develop a Test and Trials Plan which must include as a minimum, all tests and trials stated in the specification. This plan must be provided for TA review 4 week(s) prior to the originally scheduled Tests and Trials commencement.
- 1.14.2 All tests, measurements, calibrations, and readings must be recorded, signed by the person taking the measurements, dated and provided in report format both in hard copy and electronic format, to the TA, and TCMS.
- 1.14.3 Recorded dimensions must be to a precision of three decimal places (unless otherwise stated) in the measuring system currently in use on the vessel.
- 1.14.4 The Contractor must provide to the TA current and valid calibration certificates for all instrumentation used in the Test and Trials Plan showing that the instruments have been calibrated in accordance with the manufacturer's instructions.
- 1.14.5 Hard copy reports must be bound in standard 3-ring binders, type written on letter size paper and indexed by specification number. Electronic copies must be in unprotected Adobe PDF format and provide on USB drive. The Contractor must provide 3 hard copies and 1 electronic copy of all reports.
- 1.14.6 All documentation from the contract period must be inserted in a data book and delivered to the TA on completion of the contract.

1.15 Contractor Supplied Materials and Tools

- 1.15.1 The Contractor must ensure all materials are new and unused.
- 1.15.2 The Contractor must ensure replacement material such as jointing, packing, insulation, small hardware, oils, lubricants, cleaning solvents, preservatives, paints, coatings etc. are in accordance with the equipment manufacturer's drawings, manuals and/or instructions.

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- 1.15.3 Where no item is specified or where substitution must be made, the TA must approve the substituted item in writing. The Contractor must provide information about materials used, certificate of grade and quality of various materials to the TA and TI prior to use.
- 1.15.4 The Contractor must provide all equipment, devices, tools, and machinery such as crange, staging, scaffolding, lightning and rigging necessary for the completion of the work in this specification.
- 1.15.5 The Contractor must provide waste disposal services for any oil, oily waste or other hazardous or controlled waste generated by the work of this specification. The Contractor must provide waste disposal certificates for all the above generated waste and the disposal certificates must indicate that the disposal was in accordance with Federal, Provincial and Municipal regulations in effect.

1.16 Government Supplied Materials & Tools

- 1.16.1 All tools are Contractor supplied unless otherwise stated in the technical specifications.
- 1.16.2 Where tools are supplied by the TA they must be returned by the Contractor in the same condition as when they were borrowed. Borrowed tools must be inventoried and signed for by the Contractor on receipt and return to the TA.
- 1.16.3 Any Government supplied material (GSM) must be received by the Contractor and stored in a secure warehouse or storeroom having a controlled environment appropriate for the equipment as per manufacturer’s instructions.

1.17 Restricted Areas

- 1.17.1 The Contractor must not enter the following areas except to perform work as required by the specifications: all cabins, offices, workshops, Engineers’ office, Wheelhouse, Control Room, all washrooms, Galley, Mess Rooms, Lounge areas and any other areas restricted by signage.
- 1.17.2 The Contractor must give the TA 24 hours advance notice prior to working in any accommodation areas or office spaces. This must allow CCG adequate time to move personnel and secure the areas.

1.18 Contractor Inspections and Protection of Equipment and the Worksite

- 1.18.1 The Contractor must coordinate an inspection with the TA on the condition and location of items to be removed prior to carrying out the specified work or to gain access to a location to carry out the work.
- 1.18.2 Any damage incurred as a result of the Contractor’s work and that is attributable to the Contractor’s work performance must be repaired by

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the Contractor at the Contractor's expense. Materials used in any replacement or repairs must meet the criteria for Contractor supplied material noted above in section Contractor Supplied Materials and Tools.

- 1.18.3 The Contractor must protect all equipment and surrounding areas from damage. Work areas are to be protected from the ingress of water, welding and blasting grit etc. Temporary covers to work areas must be installed.

1.19 Recording of Work in Progress

- 1.19.1 The TA may record any work in progress using various means including, but not limited to photography and video, digital or film.

1.20 List of Confined Spaces

- 1.20.1 The Contractor may request a list of the vessel's identified confined spaces at the Pre-Refit meeting.

1.21 Lead Paint and Paint Coatings

- 1.21.1 The Contractor must not use lead-based paints.
- 1.21.2 CG ships have been painted with lead-based paints in the past and as a result some of the Contractor's processes such as grinding, welding, and burning may release this lead from the coatings. The Contractor must ensure that coatings in the affected work areas are tested for lead content and that the work is performed in accordance with applicable Federal and Provincial regulations.
- 1.21.3 The Contractor must provide HC product approval for underwater hull surface paints controlled by HC and the Pest Management Regulatory Agency.

1.22 Asbestos Containing Materials

- 1.22.1 The Contractor must not use any asbestos containing materials.
- 1.22.2 Handling of any asbestos containing materials must be performed by personnel trained and certified in the removal of asbestos in accordance with Federal, Provincial and Municipal regulations in effect and in accordance with the Fleet Safety and Security Manual. The Contractor must provide the TA and TI with disposal certificates for all asbestos containing material removed from the vessel indicating that the disposal was in accordance with Federal, Provincial and Municipal regulations in effect.

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1.23 Removed Materials and Equipment

- 1.23.1 All removed equipment as a result of this specification must remain the property of the Coast Guard unless otherwise instructed in the specification sections.

1.24 Welding Certification

- 1.24.1 For any work requiring the application of fusion welding for steel structures the Contractor and/or the sub-Contractor welders must be certified by the Canadian Welding Bureau in accordance with CSA Standards W47.1-03, latest revision – Certification of Companies for Fusion Welding of Steel Division 2 Certification as a minimum. Current copies of certification (including those of the welders) must be provided to the TA and the TI.

1.25 Electrical Installations

- 1.25.1 All electrical installations and repairs must be carried out in accordance with the latest revisions of Transport Canada Marine Safety Electrical Standard TP127E and IEEE Standard 45 Recommended Practice for Electrical Installation on Ships.

1.26 Electric Power

- 1.26.1 The Contractor is responsible to provide electrical power for his own use as stated in the section 2.6 of this specification.

1.27 Deliverables Official Languages

- 1.27.1 All the deliverables required under this specification must be provided in both official languages, English and French.
- 1.27.2 All the reports, data books, Manuals and any other deliverables required must be compliant to this requirement. They can be presented with both languages on the same documents or in 2 separated documents.
- 1.27.3 Both English and French must be received by CCG for a deliverable to be considered complete.
- 1.27.4 For drawings, both English and French must be on the same document. All the text present on a drawing must be in both languages. Both languages must be present on the Engineer stamped version of a drawing and before any submission to ABS for approval.

1.28 Coating Inspection

- 1.28.1 Both Vessel Owner (CCG) and Contractor each must appoint and pay for a non-employee who is a NACE Level 3-certified coating inspector to jointly perform an inspection of all exterior surfaces of the vessel as well as the interior spaces listed below identified in the Specification. At a

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- mutually agreed time, but no later than 3 business days after the Vessel is drydocked, the two inspectors must commence a joint inspection of the appropriate surfaces of the Vessel.
- 1.28.2 Together, as the joint inspection of each area of the Vessel is completed, the two coating inspectors must issue a joint report identifying the specific areas by location and size (in square meters) for which changes to the surface and its coatings are to be accomplished by Contractor, and for which Owner will compensate Contractor using previously-agreed unit rates. Multiple joint reports must be issued, one for each different area, if appropriate to expediting the schedule of Contractor's accomplishment of the work.
- 1.28.3 The joint report must address the required surface preparation as well as the coating requirements for such areas. In the event that the two inspectors cannot agree as to any specific areas in square meters for which the surface condition is to be modified and coatings applied, Contractor must be responsible to accomplish the corrections to the surface condition and coating applications for the lesser of the two recommended areas plus twenty-five percent (25%) of the additional area recommended by the other inspector.
- 1.28.4 In the event that the NACE Level 3 certified inspector representing one of the parties does not attend the inspection at the agreed time, and such delay is in excess of a full business day, the party whose inspector was not timely available must compensate the other party for the per diem and daily fees of the available inspector for the number of days during which the joint inspection was delayed, but in no event for more than five (5) full business days.
- 1.28.5 In the event that any of the below factors apply, the party whose inspector is absent must be deemed to have waived its rights to participate in the determination of the areas to be addressed for correction of surface conditions and coating applications:
- (i) one of the parties does not arrange for such a NACE Level 3 certified inspector, or
 - (ii) in the absence of agreement to delay the joint inspection, or
 - (iii) one of the appointed inspectors is delayed by more than seven (7) calendar days.
- 1.28.6 In such instance, the sole on-site appointed inspector must prepare a report in place of the planned joint report and must continue to do so in the absence of the other inspector. Should the previously-absent inspector arrive on site, the two inspectors must jointly consider only those areas that have not already been addressed by the on-site inspector during the other inspector's absence.

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- 1.28.7 The Contractor must undertake the correction fall identified surface conditions and the application of coatings as specified in the inspectors' report. The Owner must compensate Contractor using previously-agreed unit rates, corrections to be addressed through the PSPC work arising process.

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2.0 SERVICES

2.1 General

- 2.1.1 The Contractor must supply the following services to the vessel for the entire work period and disconnect upon completion of the work period. The Contractor must be responsible for the re-establishment of services if the vessel is moved during the work period.
- 2.1.2 The Contractor must be responsible for supplying all material, equipment, and labor required to connect and disconnect the services to the vessel. Unless otherwise stated these services must be available 24 hours a day 7 days a week for the entire contract period.
- 2.1.3 All staging, crange, screens, lighting and any other support services, equipment, and materials necessary to carry out the work identified in these specifications must be Contractor supplied.

2.2 Berthing

- 2.2.1 The berthing and mooring facilities must be suitable for a vessel of this size, as specified in section 4 of this specification, in local weather , tide and sea conditions. Fenders must be supplied by the Contractor to prevent the vessel from contacting the wharf in local weather / tide / sea conditions.
- 2.2.2 During the contract period, if the ship is not in dry dock, the ship must be berthed at the Contractor's wharf at a safe and secure location with a minimum clearance of 1.0 meters under the vessel at extreme low tide to ensure the vessel must not touch bottom.
- 2.2.3 The Contractor must be responsible for all movements of the vessel, including berthing and mooring of the vessel for the contract period and arrangements and costs for line handlers, tugs, and pilots.

2.3 Mooring Lines

- 2.3.1 The Contractor must be responsible for providing the necessary mooring lines and labor required to secure the vessel alongside the facilities. Ship's mooring lines are not to be used.

2.4 Gangways

- 2.4.1 Contractor must supply the labor and services required for the installation and removal of one gangway, complete with handrails, safety nets and lighting for the duration of the contract. The Contractor must be required to supply and maintain the gangways.
- 2.4.2 Any movement of the gangway required by the Contractor must be at the expense of the Contractor.

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2.5 Temporary Deck Covering

- 2.5.1 A temporary deck covering of new material is to be installed as soon as possible and before the work begins on the vessel.
- 2.5.2 To protect the alleyway flooring the Contractor must supply and install 70 m² - 3 mm MDF or Masonite sheeting over all deck surfaces on the main deck, wheelhouse, the Mess room, and Galley. Unit price for deck covering to be adjusted up or down by 1379.
- 2.5.3 All seams and edge joints must be taped to secure the coverings and prevent ingress of dirt. Deck covering must always be maintained in good condition and sections that are damaged must be replaced at TA's request.
- 2.5.4 Upon completion of the refit, the Contractor must remove and dispose of all the protective coverings installed. Any tape residue must be removed from the decks by the Contractor.

2.6 Electrical Power

- 2.6.1 The Contractor must be responsible for supplying 600 Volt Alternating Current, 60 Hertz, 3 Phase, 50 Ampere, 4-Wire service electrical power for the duration of the contract.
- 2.6.2 The Contractor is responsible to supply shore power to the ship to maintain the interior temperature and all the equipment above 15 degrees Celsius.
- 2.6.3 The Contractor must be responsible for supplying and connecting the necessary shore cable to the ship's shore power connection.
- 2.6.4 The Contractor must be responsible for ensuring that the correct phase rotation on a 3 - phase system is established prior to energizing the ship's distribution system. Any changes to the ship's power system to accommodate the Contractor supplied shore power connections must be returned to the original setup by the Contractor upon the disconnection of the Contractor supplied power cable and equipment. All work must be carried out by certified electricians.
- 2.6.5 The Contractor must supply all power to the vessel through a Contractor supplied kilowatt-hour meter. The Contractor must read the kilowatt-hour meter when the connection is made and once again when the power is disconnected. Both readings of the meter must be witnessed by the TA. The Contractor must provide a calibration certificate for the kilowatt-hour meter.
- 2.6.6 The Contractor must supply a price quote per kilowatt-hour for electrical power consumed during the work period. Final price for this item must be determined at the end of the contract once the meter has been read. The contractor must provide a unit price per kWh and bid on a total of 1000 kWh. Final cost for electricity to be adjusted by 1379.

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2.7 Potable Water Supply / Raw Water Supply

- 2.7.1 The intent is to leave the Contractor's premises with the potable water tanks full. The water must be supplied from an approved municipal drinking water supply system that has been certified safe for consumption. The Contractor must conduct the water test at the hydrant to be used for supply to the vessel in dry-dock. (Ref CCG FSSM 7A12 Potable Water Quality).
- 2.7.2 All Potable water must be supplied using NSF 61 Certified potable water hose and potable water loading must be done under the Chief Engineer's supervision.
- 2.7.3 The Contractor must supply a price quote per cubic meter of potable water. The final amount must be calculated from the calibrated water meter and adjusted by 1379.

2.8 Black and Grey Water Services

- 2.8.1 The black and grey water system will be put out of service by the vessel crew prior to the vessel docking, and remain locked out, for the contract duration. The decommissioning of those systems are under CCG's responsibility.
- 2.8.2 The Contractor and Contractor's employees will not have access to the vessel's washrooms and crew mess facilities. The Contractor must provide the necessary amenities for the Contractor's and sub-Contractors employees as required.

2.9 Vessel Security

- 2.9.1 The Contractor must provide for the safety and security of the vessel while it is under contract. The Contractor remains liable for all damage and theft while the vessel is not crewed. There is no requirement to have personnel living aboard.

2.10 Office Services

- 2.10.1 The Contractor must provide furnished, private, and secure office space for the use of the CCG project team personnel during the contract period. The office space must be located adjacent to the dry dock and vessel. The Contractor must provide commercial quality furnishings for two persons, including toilet and wash up facilities for the use of the TA/CCG.
- 2.10.2 The Contractor must supply and provide internet connections for three computers. The internet connection must be direct and not through the Contractor's security network.

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2.11 CCG Employees and Others on the Vessel

2.11.1 CCG / DFO employees and other personnel such as manufacturer’s representatives and/or TCMS or Class surveyors may carry-out other work including work items not included in this specification, onboard the vessel during this work period. Every effort must be made by the TA to ensure this work and the associated inspections and/or surveys do not interfere with the Contractor’s work.

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3.0 LIST OF ACRONYMS

ACM	Asbestos Containing Material
CA	Contract Authority (PWGSC)
CCG	Canadian Coast Guard
CLC	Canada Labour Code
CSM	Contractor Supplied Material
CSA	Canadian Standards Association
CWB	Canadian Welding Bureau
DFO	Department of Fisheries and Oceans
FSSM	Fleet Safety & Security Manual (CCG)
FSR	Field Service Representative
GRT	Gross Tonnage
GSM	Government Supplied Materials
HC	Health Canada
IEEE	Institute of Electrical and Electronic Engineers
LOA	Length Over All
MPI	Magnetic Particle Inspection
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
PWGSC	Public Works and Government Services Canada
SSMS	Safety & Security Management System
TBS	Treasury Board of Canada Secretariat
TCMS	Transport Canada Marine Safety
TI	Inspection Authority – Technical Inspector (PWGSC)
TA	Technical Authority – Owner’s Representative (CCG)
WHMIS	Workplace Hazardous Material Information System

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Vessel Particulars		

4.0 VESSEL PARTICULARS

Name: CCGS Cove Isle
Type: Type 800 Class
Voyage Class: Inland Water Class II
Year Built: 1980

4.1 Principal Dimensions:

Length: 20.0 m
Breadth, molded: 6.0 m
Loaded Draft: 1.35 m
Tonnage, displ: 76.005 Tonnes (Lightship)

4.2 Voyage Class Limits

4.2.1 The NGCC Cove Isle is limited to Near Coastal 2 – Inland Waters 2 voyages. Waters of Canada & United States lakes and rivers including the St. Lawrence River as far east as a line drawn from Cap des Rosiers to the west end of Anticosti Island (south shoreline) And from the north shore the 63 deg. Long. Line to Anticosti Island There are also limits to be within 25 miles of land, and 100 miles of a port of refuge.

4.3 Refit Period

4.3.1 Refit Start Date

4.3.1.1 The CCGS Cove Isle will be arriving at the Contractor’s dock within one week from December 19th.

4.3.1.2 Upon arrival, ship’s crew will proceed with demobilization and winterization of the vessel. The crew will require unrestricted access to the vessel for a period of 2 business days upon arrival.

4.3.1.3 The drydock must be ready for the ship to enter on December 19th, 2022, otherwise the contractor will be responsible for the vessel movements without any assistance from CCG.

4.3.2 Refit Period

4.3.2.1 The ship must remain at Contractor’s facility and under Contractor’s responsibility for the duration of the refit period, from December 19th, 2022 to February 24, 2023.

4.3.2.2 The vessel will be unmanned for the duration of the refit.

SOR #:	Specification	TCMS Field #:
Field Service Representative Requirements		

5.0 FIELD SERVICE REPRESENTATIVE REQUIREMENTS

5.1 International Paint (AKZONOBEL)

The Contractor must be responsible for obtaining the services of an accredited International Paint field service representative to supervise the work undertaken on the superstructure coatings. The field service representative must be accredited by Akzo Nobel Canada as being a competent person to perform this work.

Accredited Akzo Nobel Field Representatives are available from:

Scott Lidstone
Akzo Nobel Canada
 1174 Service Road West
 Oakville, Ontario L6L 5T7
 Tel : (800) 387-7151
 Tel: (905) 847-1500
 Fax: (905) 847-5899

5.2 Jastram Technologies Ltd.

The Contractor must be responsible for obtaining the services of an accredited Jastram Technologies field service representative to supervise the work undertaken on the hull coatings. The field service representative must be accredited by Jastram Technologies Ltd.

Accredited Jastram Technologies Ltd. Field Service Representative available from:

Mike Kemp
Jastram Technologies Ltd.
 22 Trider Crescent
 Dartmouth, NS, B3B1R6
 Tel: 902-468-6450
 Cell: 782-641-2020

5.3 Thordon Bearings

The Contractor must be responsible for obtaining the services of an accredited Thordon Bearings field service representative to supervise the work undertaken on tail shaft bearings and tail shafts coatings. The field service representative must be accredited by Thordon Bearings Canada.

SOR #:	Specification	TCMS Field #:
Field Service Representative Requirements		

Accredited Thordon Bearings Field Service Representative available from:

Michael Skrzypczak
Thordon Bearings Inc.
3225 Mainway
Burlington, ON L7M1A6
Tel: 905-335-1440 ext.274
Cell: 905-220-6910

SOR #:	Specification	TCMS Field #:
Docking and Undocking		

6.0 DOCKING AND UNDOCKING

6.1 Identification

- 6.1.1 The Contractor must dock the vessel, carry out the work identified in this specification and then undock the vessel. The Contractor must discuss with the TA any comments, concerns, or observations they may have regarding the effect of work described in this SOW on the vessel's stability or carrying capacity. Additionally, any work item that, in the opinion of the Contractor may pose a vessel structural integrity problem must be brought to the attention of the TA. The Contractor must advise the TI and TA of the details of any major changes in the distribution of weights on the vessel, while the vessel is in dry-dock.

6.2 References

6.2.1 Standards

- 6.2.1.1 Transport Canada Ship Safety Bulletin 6/89.

6.3 Technical

6.3.1 General

- 6.3.1.1 The Contractor must supply all labour, materials, equipment, tug services and facilities to dock and undock the vessel.
- 6.3.1.2 The Contractor must provide labour and services for the handling of the vessel's mooring lines and tug assistance as required to perform the docking and undocking of the vessel, and any other movements required during the contract period.

6.3.2 Docking

- 6.3.2.1 The Contractor must prepare adequate blocks and necessary shoring to maintain the true alignment of the vessel's hull and machinery throughout the docking period.
- 6.3.2.2 The Contractor must record all tank soundings, draft, trim and list of the vessel, and perform the necessary stability calculations for the successful docking of the vessel. Stability calculations must be forwarded to the TA 48 hours prior to docking the vessel.
- 6.3.2.3 The vessel must be docked so that all docking plugs, transducers, anodes, and sea inlet grids are clear and accessible. A minimum clearance of 1.5 meters (5 feet) must be available below the keel. If any hull fittings are covered, the Contractor must provide all labour and materials and make alternative arrangements to drain tanks and/or move blocks to complete the specified work.

SOR #:	Specification	TCMS Field #:
Docking and Undocking		

- 6.3.2.4 Immediately after docking the vessel and prior to draining any tanks a second set of tank soundings must be taken of all tanks and spaces. This set of readings must be used to prepare the vessel for undocking.
- 6.3.2.5 The Contractor must provide a ground cable between the vessel and the dock while the vessel is docked as per TCMS Ship Safety Bulletin 6/89.
- 6.3.3 **Undocking**
- 6.3.3.1 Prior to undocking the vessel, the Contractor must ensure all tanks are filled to the soundings recorded at docking. The Contractor must perform the necessary stability calculations for undocking the vessel considering any weight distribution changes as a result of the work of these specifications. The calculations must be forwarded to the TA 48 hours prior to undocking.
- 6.3.3.2 The Contractor must ensure that all shipside openings, including valves, drain and docking plugs are secure before flooding the dry dock.
- 6.3.3.3 The Contractor must supply, install, and remove upon completion, any necessary fittings and lugs required to carry out the work in this specification. Where lugs and/or fittings are installed and removed, the welds must be ground flush with the hull. Any damaged and/or disturbed paint work must be treated in accordance with the paint manufacturer's requirements and painted according to the vessel's paint scheme.
- 6.3.3.4 The Contractor must supply all labour necessary to handle the ship's lines during the undocking process. The Contractor must be responsible to supply the services of tugs to ensure that the vessel is undocked in a safe manner and not damaged during the procedure.

6.4 Proof of Performance

- 6.4.1 **Inspections**
- 6.4.1.1 The Contractor, in the presence of the TA, must verify that all work on the hull is complete, all docking plugs and hull openings are secure and the vessel is in all respects ready to be undocked.

6.5 Deliverables

6.5.1 Documentation (Reports/Drawings/Manuals)

- 6.5.1.1 The Contractor must provide the initial tank soundings and stability calculations prior to the docking of the vessel.
- 6.5.1.2 The Contractor must provide the second set of soundings taken immediately after the docking of the vessel.
- 6.5.1.3 The Contractor must provide the stability calculations and soundings prior to undocking the vessel.

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Docking and Undocking		

6.5.1.4 The above requirements must be provided in accordance with the Inspection, Test and Trials Plan.

SOR #:	Specification	TCMS Field #:
Anchor Windlass (Survey Item)		

7.0 ANCHOR WINDLASS (SURVEY ITEM)

7.1 Identification

7.1.1 CCG require complete Overhaul of the Anchor windlass. The Contractor must remove the windlass, and dismantle, replace all bushings, bearings, and inspect brake pads. The Contractor must grit blast and paint the frame and the drum, then reinstall, reconnect, and test the equipment. The windlass overhaul includes all related components such as the drive motor, control valve, hydraulic pump and the electric prime mover.

7.2 References

7.2.1 Documents

Drawing Number	Description
	Windlass Instruction and Maintenance Manual

7.2.2 Regulations

- 7.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 7.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 7.2.2.3 Cargo, Fumigation and Tackle Regulations (SOR/2007-128)

7.2.3 Standards

- 7.2.3.1 TCMS; TP 127E Electric Standards (2008)

7.3 Technical

7.3.1 General

7.3.1.1 The Contractor must remove the windlass and perform a complete overhaul as detailed in the current section of this document. The work in this section must be performed in a temperature-controlled environment.

7.3.2 Removal

- 7.3.2.1 The Contractor must remove the windlass assembly, the gear pump, and its electric motor.
- 7.3.2.2 Removal of the equipment must be coordinated with other work in this specification.

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Anchor Windlass (Survey Item)		

7.3.3 **Internal Component Inspection**

- 7.3.3.1 The Contractor must disassemble the anchor windlass, the drive motor, the control valve, and the hydraulic pump in order to perform an inspection of the internal components.
- 7.3.3.2 The Contractor must dismantle the hydraulic pump and take measurements of the bearing hubs, shaft diameter, gear clearance and all other wear parts. Should any of the wear part be outside of the manufacturer tolerances, the Contractor must advise the TA and provide an estimate for the repair through the use of the 1379 work arising form.
- 7.3.3.3 The Contractor must open and dismantle the control valve, inspect for wear and verify that all clearances are within manufacturer's tolerances. The Contractor must advise the TA should any further repair are needed, additional repairs will be addressed through the use of the work arising form. The valve must be reassembled with all Contractor supplied new O-rings and seals.
- 7.3.3.4 The Contractor must clean, polish and visually inspect all shafts. The shafts must be inspected for cracks through the use of ultrasonic testing. The Contractor must provide the TA & IA the opportunity to witness the testing and provide a test report.
- 7.3.3.5 The Contractor must inspect the frame of the windlass, and the windlass foundation on the ship for signs of metal fatigue and cracks. The Contractor must take a minimum of 20 ultrasound readings on the foundation and on the frame. The Contractor must consult the TA for precise location for the readings to be taken. The Contractor must notify TA 48h in advance. The TA must be onsite to witness the test and
- 7.3.3.6 Before reassembling the equipment, the Contractor must replace all bearings, bushings, seals, O-rings,
- 7.3.3.7 The electric motor must be overhauled by a qualified technician. Bearings must be replaced and a report must be provided including the following information as a minimum:
- i. Megger reading for individual windings
 - ii. Winding Resistance
 - iii. Bearing hub measurements and tolerances
 - iv. Rotor balancing report
- 7.3.3.8 Should any value be outside of the tolerances, the Contractor must notify the TA. All unknown work must be negotiated with the 1379 form.
- 7.3.3.9 The Contractor must include all the readings and the tolerances in the overhaul report.

SOR #:		TCMS Field #:
	Specification	
Anchor Windlass (Survey Item)		

7.3.4 **Paint**

- 7.3.4.1 The Contractor must grit blast all the painted surface of the windlass and prepare for painting. All the surfaces must be blasted to bare metal.
- 7.3.4.2 The Contractor must paint the surfaces with a paint system compatible to the existing, in accordance with the manufacturer recommendation for the paint application. The topcoats color must be Gray (RAL7042).
- 7.3.4.3 The Contractor must protect areas that do not require paint including but not limited to Nameplates, Model Numbers, and shafts.
- 7.3.4.4 The Contractor must ensure that the paint is fully cured before reassembling the windlass. Damage to the paint during the assembly and the installation of the equipment must be corrected at the Contractor's expense.

7.3.5 **Reassembly and Installation**

- 7.3.5.1 After completion of the work, the Contractor must reassemble and reinstall the anchor windlass with all related equipment.
- 7.3.5.2 The Contractor must then run test the equipment and demonstrate good working order to the TA and ABS.

7.4 Proof of Performance

7.4.1 **Intermediate Inspection**

- 7.4.1.1 The Contractor must make the windlass, and all the related components available to ABS Surveyor for an intermediate inspection. The intermediate inspection must be performed when the equipment is disassembled. The ABS Surveyor must have access to all the old and new parts, measurements, and tolerances.
The Contractor is responsible for scheduling the inspection with ABS. The ABS inspection fees are at CCG expense.

7.4.2 **Final Inspection**

- 7.4.2.1 The Contractor must make the windlass available to ABS Surveyor for a final inspection. The final inspection must be performed when the equipment is reassembled and reinstalled onboard. The Contractor must demonstrate the good working order and safe operation of the windlass, after completion of the overhaul.
- 7.4.2.2 The Contractor is responsible for scheduling the inspection with ABS. The ABS inspection fees are at CCG expense.

SOR #:	Specification	TCMS Field #:
Anchor Windlass (Survey Item)		

7.5 Deliverables

7.5.1 Reports

- 7.5.1.1 The Contractor must supply technical reports for the overhaul. The report must include results of the ultrasound inspection, all readings and measurements, details of all the parts replaced as well as a narrative report of the work done. Reports must be submitted to the TA in PDF electronic copy, 48h hours after completion of the work.

SOR #:	Specification	TCMS Field #:
Anchor Chain, Cable and Anchor (Survey Item)		

8.0 ANCHOR CHAIN, CABLE AND ANCHOR (SURVEY ITEM)

8.1 Identification

8.1.1 The Contractor must unship the anchor, the chain, and the cable, clean and make available for ABS inspection. The Contractor must coordinate the work with the specified work on the anchor windlass and coatings, specified in sections 7.0, 9.0 and 10.0.

8.2 References

8.2.1 Existing Equipment

Item	Location	Description
Anchor 1	Stowed (Port side)	Main Anchor, 600lb
Chain	Windlass	Chain 5/8 x 90'
Wire	Windlass	9/16 6x25 wire rope x 270'

8.2.2 Regulations

8.2.2.1 Canada Shipping Act 2001(2001, c.26)

8.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)

8.2.2.3 Cargo, Fumigation and Tackle Regulations (SOR/2007-128)

8.2.3 Standards

8.2.3.1 TCMS; TP 127E Electric Standards (2008)

8.2.3.2 TCMS; TP 3668E Standards for Navigating Appliances and Equipment

8.2.3.3 TCMS; TP 7301E Stability, Subdivision and Load Line Standards

8.3 Technical

8.3.1 Removal

8.3.1.1 The Contractor must remove the anchor, the anchor chain, and the cable.

8.3.2 Cleaning and Inspection

8.3.2.1 The Contractor must pressure clean the anchor, the chain, and the cable.

8.3.2.2 All anchors and chain must be made available to ABS Surveyor for inspection.

8.3.2.3 The Contractor must perform 50 NDT readings on the chain, number that can be adjusted up or down using 1379. The NDT reading location will be determined by ABS surveyor and TA.

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Anchor Chain, Cable and Anchor (Survey Item)		

8.3.3 **Reinstallation**

8.3.3.1 Once the inspection is completed to the satisfaction of the TA and ABS surveyor, the Contractor must reinstall the Anchor, the Chain and the cable on the windlass.

8.3.3.2 The Contractor must coordinate the work set about in this section with other work included in this specification such as the Anchor windlass and hull inspection and paint work. Any delays/cost due to scheduling conflicts must be at contractor's expense.

8.4 **Proof of Performance**

8.4.1 **ABS Inspection**

8.4.1.1 The anchor, the chain and the cable must be made available for ABS Surveyor and the TA for inspection.

8.4.1.2 The Contractor is responsible for scheduling the inspection with ABS, inspection fees at CCG expense.

8.5 **Deliverables**

8.5.1 **Reports**

The Contractor must supply technical reports for the work completed in this section. The report must include the narrative description and details on all the findings done by the Contractor during execution of the work. The report must also include the details of the ABS inspection such as date, time, and name of the inspector.

SOR #:	Specification	TCMS Field #:
Hull Inspection and Coating (Survey Item)		

9.0 HULL INSPECTION AND COATING (SURVEY ITEM)

9.1 Identification

- 9.1.1 The Contractor must clean the underwater hull area of the vessel and must do a preliminary survey on the shell plating with the TA and ABS in attendance. This inspection must identify areas of the hull that need to be grit blasted and recoated to the paint manufacturer's requirements. The Inspection must identify and determine seam welds that require repair. This inspection must be completed within 72 hours of docking the vessel.
- 9.1.2 The paint under Section 9.0 is supplied by CCG

9.2 References

9.2.1 Product Data

- 9.2.1.1 SubSea EcoSpeed product data sheet
- 9.2.1.2 SubSea EcoShield product data sheet

9.2.2 Documents:

Drawing Number	Drawing Title
C06120GA1	CCGS COVE ISLE GENERAL ARRANGEMENT

9.2.3 Regulations

- 9.2.3.1 Canada Shipping Act 2001(2001, c.26)
- 9.2.3.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 9.2.3.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

9.2.4 Standards

- 9.2.4.1 TCMS; TP 7301E Stability, Subdivision and Load Line Standards

9.2.5 Quality Assurance Standards

- 9.2.5.1 CCG Specification for Electronic Technical Data Deliverables
- 9.2.5.2 CCG Computer Aided Design (CAD) using AutoCAD
- 9.2.5.3 Trim and Stability Book Production for CCG Vessels

9.3 Technical

9.3.1 General

- 9.3.1.1 The total underwater hull area of the vessel is approximately 170 m2.

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Hull Inspection and Coating (Survey Item)		

- 9.3.1.2 The total area of hull above the deep load water line excluding the bulwarks is approximately 90 m².
- 9.3.1.3 The Contractor must supply all necessary staging and man lifts for the work of this specification, including inspections by ABS and the TA.
- 9.3.1.4 The Federal Identity Program Canada Word Mark decals will be GSM. The Contractor must supply all other materials and labour for the work of Section 9.0 **Error! Reference source not found.**
- 9.3.1.5 The Contractor must ensure that all items not being grit blasted or coated are protected during the execution of this specification item. All equipment protection must be removed at completion. Where blasting grit and/or paint overspray damages equipment and/or other paint coatings, the Contractor must correct at the Contractor's expense prior to the completion of the contract.
- 9.3.1.6 The Contractor must clearly identify, mark and cover the echo sounder transducer covering plates and impressed current corrosion system anodes and cathodes to protect them from the grit blasting and coating process.
- 9.3.1.7 The Contractor must ensure no ingress of blasting grit and/or overspray to the accommodation area of the vessel. All openings must be sealed or closed off to prevent the ingress of blasting grit and/or overspray. The Contractor must be responsible for the cleanup of all blasting grit, debris, and overspray from the vessel's interior and exterior decks.
- 9.3.1.8 All overboard discharges must be plugged and protected from blasting grit and hull coating.
- 9.3.1.9 All scuttles, port holes and windows must be protected from blasting grit and paint/hull coating.
- 9.3.1.10 The Contractor must also protect all deck machinery and hydraulic components that may be subject to grit fouling. For example, but not limited to, greased capstans, hydraulic rams, winches, and davit sheaves.
- 9.3.1.11 The Contractor must dispose of all blasting grit and debris according to applicable Federal, Provincial, and Municipal regulations.
- 9.3.1.12 The Contractor must ensure that all coatings are applied within the allotted dry dock period in order to allow for the full and proper curing of the coating to the vessel's hull prior to immersion. Any application that results in an unacceptable coating to the FSR and TA must be redone (blasting included) at the Contractor's expense.
- 9.3.2 **Hull Cleaning**
- 9.3.2.1 The Contractor must water blast the entire underwater hull surface of the vessel to the deep-water load line within 24 hours of docking the vessel.

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Hull Inspection and Coating (Survey Item)		

- 9.3.2.2 The water blast pressure must be a minimum of 4000 psi/maximum 6000psi. The Contractor must remove all marine growth, including slime, from the underwater hull surface of the vessel.
- 9.3.3 **Underwater Hull Inspection**
- 9.3.3.1 The Contractor, together with the TA and ABS, must inspect the cleaned underwater hull areas of the vessel. The Contractor must mark up a clean copy of the shell expansion plan based on the inspection with the areas of the hull below the deep load waterline that requires grit blasting and re-coating with new Contractor supplied paint.
- 9.3.3.2 The Contractor, together with the TA and ABS must conduct the underwater hull inspections within 36 hours of the vessel coming onto the blocks.
- 9.3.4 **Underwater Hull Repairs following**
- 9.3.4.1 The Contractor must carry out all prescribed repairs resulting from the ABS surveyor of the underwater hull. Repair must be in accordance with all applicable standards and regulations including. Work for underwater hull repairs will be negotiated using the PWGSC 1379 process.
- 9.3.4.2 The Contractor must quote on 50 meters of plate seam and butt welding to be renewed consisting of the following:
- i. removal of the existing coating system;
 - ii. gouging to a depth such that a 1 pass weld will provide the necessary finish profile;
 - iii. replacement of the coating system as specified in Section 9.4;
- 9.3.4.3 Actual length of welds to be renewed will be determined as part of the underwater hull inspection and the total length renewed will be prorated using the 1379 process.
- 9.3.4.4 All materials used for the prescribed hull repairs must meet or exceed original specifications and must be compliant with applicable regulations and standards.
- 9.3.4.5 Upon completion of the prescribed repairs, the Contractor must re-install all sea-chest grates and schedule the ABS surveyor for acceptance of all repairs and modifications prior to the application of the hull coating system. The TA and TI must be afforded the opportunity to be present for this inspection.
- 9.3.4.6 All new and disturbed metal resulting from the prescribed repairs and modifications must be prepared and coated in accordance with this specification.

SOR #:	Specification	TCMS Field #:
Hull Inspection and Coating (Survey Item)		

9.3.5 **Hull Thickness**

- 9.3.5.1 The Contractor must determine and record the hull thicknesses as detailed below and present the results to ABS and obtain survey credit for the readings.
- 9.3.5.2 The Contractor must take ultrasonic readings on the underwater hull up to the design load line draft. The Contractor must take no less than 4 readings from each hull panel and no less than 4 readings of each panel inside each sea chest, each sea bay, and 4 inside each pipe connection for shipside valves.
- 9.3.5.3 Particular attention must be paid to plating in way of hull openings and to areas of visible damage and corrosion.

9.4 **Coating Renewal**

9.4.1 **General**

- 9.4.1.1 The Contractor must obtain the services of a qualified International Field Service Representative to supervise the surface preparation and coating application for the International Paint products. The FSR must be present during the entire process to verify conformity to the manufacturer's required procedures for the application of the coating product.

9.4.2 **Hull Surface Preparation**

- 9.4.2.1 The Contractor must prepare the surface of the underwater hull in accordance with the coating manufacturer's requirements and as follows:
- 9.4.2.1.1 The totality of the surface must be grit blasted to Sa 2 ½ Standard. The profile of blasted steel must be a minimum of 75 microns.
- 9.4.2.1.2 The Contractor must adhere to all coating system manufacturer's requirements for the surface preparation and application. The FSR and the NACE Inspectors must be on site during all coating applications and must be consulted for proper application requirements with regards to the ambient conditions.

9.4.3 **Underwater Hull Coating Renewal**

- 9.4.3.1 The Contractor must grit blast and recoat the entire underwater hull area of the Cove Isle as specified.
- 9.4.3.2 For the bidding process, the Contractor must bid on the following coating renewals; to be adjusted up or down by 1379 process:
- 170 m2 of hull coating;
 - Port and Stbd Rudders;

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Hull Inspection and Coating (Survey Item)		

- 9.4.3.3 The Contractor must apply the following coating system to the hull in accordance with the coating manufacturer's requirements:
- 1 coat of EcoSpeed @ 500 microns DFT (Aluminum colour);
 - 1 coat of EcoSpeed @ 500 microns DFT (BLACK);
- 9.4.4 **Above Water Line Hull Coating Renewal**
- 9.4.4.1 The Contractor must grit blast and coat 100% of the above water line hull area:
- 9.4.4.2 The recoating of the hull must be performed after all other exterior hull work has been completed such as seam welding, rudder work, and other work that would impact the integrity of the finished hull coating.
- 9.4.4.3 Repairs to areas disturbed after the finish coatings are at the Contractor's expense for labour and material.
- 9.4.4.4 The Contractor must bid on the following coating renewals; to be adjusted up or down by 1379 process:
- 75 m2 of hull coating;
- 9.4.4.5 The Contractor must apply the following coating system to the blasted areas of the hull in accordance with the coating manufacturer's requirements:
- 1 coat of EcoSpeed @ 500 microns DFT (Aluminum colour);
 - 1 coat of EcoShield @ 500 microns DFT (RAL3000);
- 9.4.5 **Hull Marking Renewals**
- 9.4.5.1 The Contractor must supply and apply 2 coats of SUBSEA Eco Shield RAL9003 white, to outline and paint all draft markings at the completion of the application and curing of the hull coating system.
- 9.4.5.2 The Contractor must bid on the following:
- i. Re-coating all draft marks with new white EcoShield;
- 9.4.5.3 The Contractor must apply 1 coats of EcoShield White - RAL9003(500 micron DFT) on the Ship's identity program markings:
- i. Fwd Port Ship's Name (COVE ISLE)
 - ii. Fwd Stbd Ship's Name (COVE ISLE)
 - iii. Aft Ship's Name (COVE ISLE)
 - iv. Aft Identification (OTTAWA)
- 9.4.5.4 Identity program marking also includes the "COAST GUARD"/"GARDE CÔTIÈRE" markings, the Canadian flags and the "Fisheries and Oceans Canada"/"Pêches et Océans Canada" markings located aft of the ship.

SOR #:	Specification	TCMS Field #:
Hull Inspection and Coating (Survey Item)		

- 9.4.5.5 The Contractor must apply the Federal Identity Program Canada Word Mark decals. The word mark decals must be supplied and applied by the Contractor, in the same location as they are currently.
- 9.4.5.6 The Contractor must renew the coating on the 'Coast Guard' identification line (Black – White – Black). Lines are located on the hull above water line on both Port and Stbd sides. After appropriate surface preparation and application of the EcoSpeed as per section Manufacturer's recommendations.
- 9.4.6 **Inspection**
- 9.4.6.1 The Contractor must have the surface preparation inspected and approved by the FSR. The FSR, in the presence of the TA, must verify that all of the surfaces have been blasted to the required.
- 9.4.6.2 The Contractor must provide a Quality Assurance (QA) report indicating that all areas, as defined in this specification, have been inspected by the Contractor's QA Department and all areas of defects established by this survey have been identified for remedial action.
- 9.4.6.3 The Contractor must perform and record Wet Film Thickness readings during each application of coating, as required by the FSR. The readings and their locations must be contained in the final report.
- 9.4.6.4 Upon completion of all coating, applications the Contractor must take and record no less than 30 dry film thickness readings as required by the FSR and the TA. The readings and their locations must be contained in the final report.

9.5 Deliverables

- 9.5.1 **Report**
- 9.5.1.1 The Contractor must provide a report of the findings, work, and final condition of the work.
- 9.5.1.2 The Contractor must provide a coating application report from the FSR to the TA that details all of the particulars of the coating application process as completed by the Contractor. The report must include details of all environmental conditions at the time any hull coatings were applied and at which areas on the hull the coating was applied. This must include but not be limited to the dry and wet bulb temperatures, relative humidity, dew point and the times when painting was started and stopped. The report must include the temperature of the product at application time as well as wet and dry film thickness gauge readings.
- 9.5.1.3 The Contractor must include in the final report the details of the seam and butt welding that was completed. This report must detail the location and length of each weld, ABS inspection approval for each final weld and any testing results required in way of each weld.

SOR #:	Specification	TCMS Field #:
Superstructure Coating Renewal		

10.0 SUPERSTRUCTURE COATING RENEWAL

10.1 Identification

- 10.1.1 The Contractor must clean the superstructure and deck surfaces of the vessel. The Contractor must then grit blast and prepare the surfaces for the new coating and apply the coating.

10.2 References

10.2.1 Product Data

- 10.2.1.1 Interprime 198 Product Data and Application Sheets
- 10.2.1.2 Interprime 234 Product Data and Application Sheets
- 10.2.1.3 Interprime 539 Product Data and Application Sheets
- 10.2.1.4 Interlac 665 Product Data and Application Sheets

10.2.2 Documents:

Drawing Number	Drawing Title
C06120GA1	CCGS COVE ISLE GENERAL ARRANGEMENT

10.2.3 Regulations

- 10.2.3.1 Canada Shipping Act 2001(2001, c.26)
- 10.2.3.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 10.2.3.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

10.2.4 Standards

- 10.2.4.1 TCMS; TP 7301E Stability, Subdivision and Load Line Standards

10.2.5 Quality Assurance Standards

- 10.2.5.1 CCG Specification for Electronic Technical Data Deliverables
- 10.2.5.2 CCG Computer Aided Design (CAD) using AutoCAD
- 10.2.5.3 Trim and Stability Book Production for CCG Vessels

10.3 Technical

10.3.1 General

- 10.3.1.1 The total area of white superstructure is approximately 90 m², including the railing on the poop deck and the bridge deck.
- 10.3.1.2 The Contractor must grit blast and coat the white superstructure area from the deck level of the vessel to the upper bridge top level.

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Superstructure Coating Renewal		

- 10.3.1.3 For the bidding process, the Contractor must bid on a total 90 m² superstructure coating to be renewed; to be adjusted up or down by 1379 process.
- 10.3.1.4 The Contractor must take photographs and document the paint scheme as currently applied to the Cove Isle for the specific use in recoating the superstructure to the correct colour requirements.
- 10.3.1.5 Failure to coat the vessel correctly must be corrected by the Contractor at Contractor expense.
- 10.3.2 **Surface Preparation**
- 10.3.2.1 The Contractor must prepare the surface of the above hull area in accordance with the coating manufacturer's requirements and to the following requirement:
- 10.3.2.2 All areas must be grit blasted to bare steel: near white SSPC SP10 (S2-1/2 Swedish Standard). The profile of blasted steel must be a minimum of 80 Microns.
- 10.3.2.3 The Contractor must protect all portholes, windows, vents, stack openings, drains and fixtures from any blasting either direct or indirect. Blast residue must not be allowed to enter the ships superstructure or damage areas not part of the blast requirements.
- 10.3.2.4 In similar context to blasting protection, the Contractor must protect all portholes, windows, vents, stack openings, drains and fixtures from paint coating application and overspray during the coating process. The Contractor must remove and dispose of this protection prior to the end of the Contract when deemed the protection is no longer warranted. Any damage to the newly coated area must be repaired at the Contractors expense using the specified Contractor provided materials.
- 10.3.2.5 The Contractor must apply the following coating system to the blasted areas of the superstructure in accordance with the coating manufacturer's requirements:
- 10.3.2.6 Poop Deck and FWD deck (30m²):
- i. 1 coat of Interprime 234 (Red CPA234) @ 100 microns DFT
 - ii. 2 coats of Deck Red Brown Interlac 665 (RAL 3011) @ 40 microns DFT each coat;
 - iii. Non-Slip aggregate (according to manufacturer recommendation)
- 10.3.2.7 Bridge Deck and Monkey Island Deck (60 m²):
- i. 1 coat of Interprime 539 (Yellow CPA538)@ 15 microns DFT
 - ii. 1 coat of Interprime 198 (Grey CPA098) @ 100 microns DFT each coat;

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Superstructure Coating Renewal		

- iii. Deck Grey Interlac 665 (RAL 7042) @ 40 microns DFT each coat;
- iv. Non-Slip aggregate (according to manufacturer recommendation)

10.3.2.8 Superstructure (90m²):

- i. 1 coat of Interprime 539 (White) @ 15 microns DFT
- ii. 2 coat of Interprime 234 (Off White CPA097) @ 100 microns DFT each coat;
- iii. 2 coats of Interlac 665 (WHITE – RAL9003) @ 40 microns DFT each coat;

10.3.2.9 Maple Leaf Emblem 2 coats Primer (1m²):

- i. 2 coat of Interprime 234 Red @ 100 microns DFT each coat
- ii. 3 coats of Interlac 665 (Red - RAL3011) @ 40 micron DFT each coat;

10.3.2.10 The Contractor must adhere to all coating system requirements for the application of the coating system. The Contractor must record ambient and dew point temperatures in the presence of the TA prior to the application of the coatings. These readings must be recorded and be provided in the final coating application report.

10.4 Proof of Performance

10.4.1 Inspection

- 10.4.1.1 The Contractor must have the surface preparation inspected and approved by the FSR. The FSR, in the presence of the TA, must verify that the surfaces have been blasted to the required standard in any bare areas as well that all hard edges to the existing hull coating have been feathered as required in the paint manufacturer’s recommendations.
- 10.4.1.2 The Contractor must provide a Quality Assurance (QA) report indicating that all areas, as defined in this specification, have been inspected by the Contractor's QA Department and all areas of defects established by this survey have been identified for remedial action.
- 10.4.1.3 The Contractor must perform and record Wet Film Thickness readings during each application of Interprime 539 and Interprime 198, as required by the FSR. The readings and their locations must be contained in the final report.
- 10.4.1.4 Upon completion of all coating, applications the Contractor must take and record no less than 30 dry film thickness readings as required by the FSR and the TA. The readings and their locations must be contained in the final report.

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Superstructure Coating Renewal		

10.5 Deliverables

10.5.1 Report

- 10.5.1.1 The Contractor must provide a report of the findings, work, and final condition of the work.
- 10.5.1.2 The Contractor must provide a coating application report from the FSR to the TA that details all the particulars of the coating application process as completed by the Contractor. The report must include details of all environmental conditions at the time any hull coatings were applied and at which areas on the hull the coating was applied. This must include but not be limited to the dry and wet bulb temperatures, relative humidity, dew point and the times when painting was started and stopped. The report must also include the temperature of the product at application time as well as wet and dry film thickness gauge readings.
- 10.5.1.3 The Contractor must include in the final report the details of the seam and butt welding that was required to be carried out. This report must detail the location and length of each weld, ABS inspection approval for each final weld and any testing results required in way of each weld.

SOR #:	Specification	TCMS Field #:
Sacrificial Anodes		

11.0 SACRIFICIAL ANODES

11.1 Identification

- 11.1.1 The Contractor must replace all wasted and/or defective hull anodes and corrosion protection on the underwater hull of the vessel. The Technical Authority must identify the anodes to be replaced.

11.2 References

11.2.1 Existing Equipment

Location	Quantity	Dimensions
Shell below chine	Six (6)	12"X6"
Port Skeg	Two (2)	12"X6"
Stbd Skeg	Two (2)	12"X6"
Port Rudder	Two (2)	12"X4"
Stbd Rudder	Two (2)	12"X4"

11.2.2 Regulations

- 11.2.2.1 Canada Shipping Act 2001(2001, c.26)
 11.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)

11.3 Technical

11.3.1 General

- 11.3.1.1 The Contractor must replace all wasted and/or defective hull anodes and corrosion protection on the underwater hull of the vessel. The Technical Authority must identify the anodes to be replaced.

11.3.2 Anode Replacement

- 11.3.2.1 The Contractor must remove all wasted and damaged anodes. The Contractor must fit new anodes in the same location as the removed anodes ensuring maximum contact between anode and hull or drive. This must be done after the hull coating has been applied. All weld areas must be touched up with the hull coating after the anodes have been fitted.
- 11.3.2.2 The Contractor must record all anode locations on a copy of the CCG supplied General Arrangement drawing, a copy of the amended docking plan must be submitted to the Technical Authority upon completion of anode work.
- 11.3.2.3 Contractor must inspect fourteen (14) sacrificial anodes.

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Sacrificial Anodes		

- 11.3.2.4 The Contractor must bid on replacing a total of 6 anodes (4x 12"x6" and 2x 12"x4"). The Contractor must supply the 6 new anodes.
- 11.3.2.5 Total is to be adjusted up or down with the 1379 process.
- 11.3.2.6 All anodes must be protected from the coating material to be applied. All anode protection must be removed after completion of the coating application. Any anodes which are found to be covered with coating are to be renewed at the Contractor's expense.

11.4 Proof of Performance

- 11.4.1 The Contractor must notify the TA upon completion of this work item to allow sufficient time for inspection. The TA must ensure that the work has been completed as detailed in this Section.

11.5 Deliverables

- 11.5.1 The Contractor must detail which anode have been replaced. The report must include the specification of the new installed anodes as well as the condition of all retained anodes.

SOR #:	Specification	TCMS Field #:
Sea Chest and Sea Bay (Survey Item)		

12.0 SEA CHEST AND SEA BAY (SURVEY ITEM)

12.1 Identification

12.1.1 The Contractor must remove the sea chest grids, clean the sea bay and sea chest internals, and prepare for inspection by ABS for a survey credit. The sea bay and sea chests must then be re-coated, and the sea bay grids must be re-installed.

12.2 References

12.2.1 Shell Plate Access Grids for Sea Chests

12.2.1.1 The Contractor must remove the grids and/or covers from the following:

DESCRIPTION	LOCATION	AREA
Port Sea Chest	Frames 13-14	5 m2
Stbd Sea Chest	Frames 13-14	5 m2

12.2.2 Documents

Drawing Number	Description
C06109pl1	CCGS Cove Isle Cooling Water Piping Arrangement

12.2.3 Regulations

12.2.3.1 Canada Shipping Act 2001(2001, c.26)

12.2.3.2 TCMS; Marine Machinery Regulations (SOR/90-264)

12.2.3.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

12.3 Technical

12.3.1 General

12.3.1.1 The Contractor must co-ordinate the work of this Section with that of Section 8.0, 9.0, 10.0, 11.0 and 13.0. Where shipside valves are removed (Section 13.0) and hull blasting is being performed (Section 9.0) the Contractor must ensure that no blasting debris or overspray from either work enter the machinery space at any time.

12.3.1.2 The Contractor must remove all sea chest and sea bay access covers. The Contractor must note the condition of all defective bolts on the sea chest grids and bring these to the attention of the TA. Replacement of the identified defective bolts will be negotiated using 1379 process.

12.3.1.3 The Contractor must thoroughly clean all sea chests and sea bays of all marine growth, dirt, and debris. All dirt and debris must be removed

SOR #:	Specification	TCMS Field #:
Sea Chest and Sea Bay (Survey Item)		

from the vessel and disposed of ashore in accordance with Federal, Provincial and Municipal regulations in effect.

- 12.3.1.4 The Contractor must bid on the removal and disposal of 1 cubic meters of solid debris from the sea chests and sea bay areas. Final pricing to be pro-rated adjusted based on the actual volume of debris removed; to be adjusted up or down by 1379 process.
- 12.3.1.5 The Contractor must submit the cleaned spaces for inspection by the attending ABS surveyor to obtain a survey credit.
- 12.3.1.6 The Contractor, in conjunction with TA and the International FSR must inspect and determine the condition of the coatings in the sea bays and the sea chests. Based on this inspection the TA and Contractor must agree on the areas to be re-coated from bare steel and any other necessary work to fully restore the coatings in the sea bays and sea chests.
- 12.3.2 Coating**
- 12.3.2.1 The Contractor must prepare any bare areas in accordance with the coating manufacturer's requirements and must apply the following coating system to the sea bay and sea chests:
- 1 coat of EcoSpeed @ 500 microns DFT (Aluminum colour);
 - 1 coat of EcoSpeed @ 500 microns DFT (Black);
- 12.3.2.2 The Contractor must bid on coating 100% of the surface 10 square meter in total. The pricing will be adjusted down with 1379 process to reflect the actual surface covered.
- 12.3.2.3 The Contractor must take and record coating thickness measurements for each layer of coating system applied. The Contractor must record where the thickness measurements were recorded. A minimum of 20 readings must be taken.
- 12.3.2.4 The Contractor must re-install all shell plate access grids for the sea chests with new CCG supplied 316 Stainless Steel securing bolts (Bolt size and thread pitch to be determined on site). Bolts must be Hex-Socket design for flush mounting and must be tack welded in place after hardening up. Welding must be performed so as not to foul the hex socket or diminish the integrity of the bolt. Bolt threads and all studs must be coated with Loctite® Marine Grade or Loctite® 8023 Anti-Seize compound prior to installation.

12.4 Proof of Performance

- 12.4.1 The Contractor must have the surface preparation and coatings inspected by the International Paint FSR and the TA to ensure that the agreed to areas have been properly coated. The Contractor must allow

SOR #:	Specification	TCMS Field #:
Sea Chest and Sea Bay (Survey Item)		

sufficient time in dock for the paint system to fully cure, prior to undocking the vessel.

12.5 Deliverables

- 12.5.1 The Contractor must provide a report of the findings, work and final condition of the work of Section 12.0 in accordance with the Inspection, Test and Trials Plan. The Report must be provided to the TA within 5 business days of the completion of the Paint work.
- 12.5.2 The Contractor must provide a coating application report to the TA that details all of the particulars of the coating application process as completed by the Contractor. The report must include details of all environmental conditions at the time any hull coatings are applied and at which areas on the hull the coating was applied. This must include but not be limited to the dry and wet bulb temperatures, relative humidity, dew point and the times when painting was started and stopped. The report must also include be the temperature of the product at application time as well as wet and dry film thickness gauge readings.
- 12.5.3 The Contractor must provide the ABS survey credit documentation for the work of Section 12.0.

SOR #:	Specification	TCMS Field #:
Sea Valves (Survey Item)		

13.0 SEA VALVES (SURVEY ITEM)

13.1 Identification

- 13.1.1 The Contractor must isolate, open, and dismantle the valves identified in the reference table and submit these for inspection by the attending ABS surveyor for a survey credit. The Contractor must then reassemble and reinstall the valves and prove all valves are operational once the vessel is undocked.

13.2 References

13.2.1 Equipment Data

Overboard Discharge Valves			
Description	Type	Inch Size	Frame Location
Sewage Discharge	S.D.N.R.	2	
Port S.S.G. Raw Water Discharge	S.D.N.R.	2	
STBD S.S.G. Raw Water Discharge	S.D.N.R.	2	
Main Engine Raw Water Discharge	S.D.N.R.	2	
Main Engine Raw Water Discharge	S.D.N.R.	2	
Fire Pump Discharge	S.D.N.R.	1 1/2	
Bilge Pump Discharge	S.D.N.R.	1 1/2	
Sea Connections			
Description	Type	Inch Size	Frame Location
Main Sea Chest Valve	Gate	4	
Main Sea Chest Valve	Gate	4	
Main Sea Bay Isolation Valve	Gate	4	
Main Sea Bay Isolation Valve	Gate	4	

13.2.2 Documents

Drawing Number	Description	Location
C06109pl1	CCGS Cove Isle Cooling Water Piping Arrangement	KEY Folder 11.0

13.2.3 Regulations

- 13.2.3.1 Canada Shipping Act 2001(2001, c.26)
- 13.2.3.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 13.2.3.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

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Sea Valves (Survey Item)		

13.3 Technical

13.3.1 General

- 13.3.1.1 The Contractor must co-ordinate the work in this Section with that of other sections in this specification. Where skin valves are removed and hull blasting is underway the Contractor must ensure that no blasting media or coating system overspray enter the system from which the skin valves have been removed. The Contractor must also ensure that no blasting media or overspray enter the machinery space.
- 13.3.1.2 The Contractor must identify all valves and tag all the valves and valve parts to ensure that items for a particular valve can be identified once the valve and parts have been removed from the vessel.
- 13.3.1.3 The Contractor must remove, disassemble and clean all valves and valve components identified in the section Equipment Data. The valves must be laid out for inspection by the attending ABS surveyor. A survey credit must be obtained for all valves identified.
- 13.3.1.4 The Contractor must grind all valve disc and valve seats where required. Final lapping must be done to ensure the valve discs have full contact with the valve seat.
- 13.3.1.5 The Contractor must machine valve discs, valve seats, and valve stems where required. The Contractor must bid on providing 25 hours of machining; to be adjusted up or down by 1379 process.
- 13.3.1.6 The Contractor must perform hydrostatic testing of all the valves at a pressure of 50 psi. The valves must hold the pressure for a minimum of 15 minutes. All the tests must be witnessed by the ABS and the TA.
- 13.3.1.7 The Contractor must re-assemble and re-install all valves with new Contractor supplied gaskets and packing. All valves must be installed and left in their closed position.

13.4 Proof of Performance

- 13.4.1 The Contractor must identify all valves that are beyond their serviceability at the earliest possible time to the TA to avoid a potential delay in the undocking of the vessel.
- 13.4.2 The Contractor must allow TA the opportunity to examine all valves in their disassembled state.
- 13.4.3 During the undocking of the vessel, the Contractor must have sufficient personnel on hand such that all valves listed in Section 13.2.1 can be inspected for leaks. Once sufficient water depth has been obtained, all closed valves must be opened and verified that no bonnets or valve packings are leaking. Any leaks must be rectified by the Contractor prior to the close of the contract.

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Sea Valves (Survey Item)		

13.4.4 The Contractor must demonstrate to the TA that all valves are operating as designed.

13.5 Deliverables

13.5.1 The Contractor must provide a report of the findings, work, and final condition of the work of this section.

13.5.2 The Contractor must provide a detailed report of all work carried out to the valves. This must include details on the machining and repairs (if required) and on what valves it was performed on. The report must also include details of any valves that have been replaced. Where valves are replaced the Contractor must supply valve certificates.

13.5.3 The Contractor must provide the ABS survey credit documentation for the work of this section.

SOR #:	Specification	TCMS Field #:
Rudders (Survey Item)		

14.0 RUDDERS (SURVEY ITEM)

14.1 Identification

- 14.1.1 The Contractor must unship the rudders, prepare them for ABS survey, then re-install the rudders and set them to work.

14.2 References

14.2.1 Drawings

Drawing Number	Description	Location
C06106AR	Rudder & Steering Gear Arrangement & Details	Folder 14.0

14.2.2 Regulations

- 14.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 14.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 14.2.2.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

14.3 Technical

14.3.1 General

- 14.3.1.1 The Contractor must unship the Port and Starboard rudders and rudder stocks for inspection by the attending ABS surveyor for survey credit.

14.3.2 Pintles and Gudgeons

- 14.3.2.1 The Contractor must take and record the Port and Starboard gudgeon to pintle clearances and the Port and Starboard rudder stock lower end carrier bearing clearances. Copies of readings must be provided to the TA within 24 hours of the rudders being removed from the vessel.
- 14.3.2.2 Readings taken by the Contractor must be used to determine if new pintle and gudgeon bearing sleeves need to be machined and installed.
- 14.3.2.3 Final measurements of the pintle outside diameter and gudgeon inside diameter must be taken in three places along the length of the bearing (Top, Center and Bottom) in both the Port/Starboard and Fore/Aft directions.
- 14.3.2.4 Final measurements must be presented to the TA for approval prior to fitting the Rudders.

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Rudders (Survey Item)		

14.3.3 **Sleeve and Bearing**

14.3.3.1 Documentation with the final measured clearance for both Port and Stbd rudder bearings with reference to the manufacturer specified clearance must be provided to the TA and to ABS for approval.

14.3.3.2 Final measurements of the pintle outside diameter and gudgeon inside diameter must be taken and recorded in three places along the length of the bearing (Top, Center and Bottom) in both the Port/Stbd and Fore/Aft directions. Final measurements must be presented to the TA and the TI for approval prior to fitting the Rudders

14.3.4 **Rudders**

14.3.4.1 Unshipping of the rudder stocks must include the removal of the rudder follow-up assemblies, disconnecting of the actuating rams from the rudder tiller arms, the rudder stock nuts and locking bars, and tiller heads. Any damage to the threads of the rudder stocks during the removal of the nuts, removal, storage or refitting of the rudders and rudder nuts must be corrected by the Contractor to ABS approval, at Contractor's expense.

14.3.4.2 The Contractor must remove and dispose of all packing and grease from the rudder stock glands. The Contractor must supply new grease for reinstallation.

14.3.4.3 The Contractor must perform MPI examinations of the rudder stock keyways and rudder stock threads.

14.3.5 **Rudder Stocks**

14.3.5.1 The Contractor must take and record the dimensions of the rudder stock liners in way of the lower guide bearings, at the top, middle and bottom of the liner in both the fore/aft and port/starboard directions for each position.

14.3.5.2 The Contractor must take and record the dimensions of the lower guide bearings at the corresponding positions on the liner and the clearances between the components.

14.3.5.3 The Contractor must take and record the dimensions of the rudder stock liners in way of the radial bearing at the top, middle and bottom of the liner in both the fore/aft and port/starboard directions for each position.

14.3.5.4 The Contractor must take and record the dimensions of the radial bearings at the corresponding positions on the liner and the clearances between the components.

14.3.5.5 The Contractor must submit the rudder stocks to Non-Destructive Testing (NDT) in way of the threads, landings, fitted bolt holes and radii. The Contractor must obtain a report on the rudder stock condition and obtain ABS credit that the rudder stocks are in good condition. The

SOR #:	Specification	TCMS Field #:
Rudders (Survey Item)		

Contractor must ensure that any past damage to the rudder stocks in way of the threaded areas is fully examined and documented in the approval. Any repairs or deficiencies in the rudder stocks must to be covered by the 1379 process.

14.4 Rudder Seal Replacement

- 14.4.1 The Contractor must replace the existing rudder stuffing boxes with mechanical seals.
- 14.4.2 All the material is to be supplied by the Contractor.
- 14.4.3 Installation of the mechanical seals must be performed by manufacturer's FSR.
- 14.4.4 **Installation and Set to Work**
 - 14.4.4.1 The Contractor must re-install the rudders, rudder tiller arms, rudder stock nuts, locking bars, hydraulic rams and rudder follow-up assemblies and set the rudders and steering gear to work.
 - 14.4.4.2 The Contractor must take and record the fitted clearance between the fitted keys and keyways of the rudderstocks and tiller heads for both the Port and Stbd rudders.

14.5 Proof of Performance

- 14.5.1 The Contractor must have each rudder inspected by the attending ABS surveyor and provide the TA with proof of inspection.
- 14.5.2 The Contractor must provide a Quality Assurance report indicating that the Contractor's Q.A. department for correct installation and fit has inspected all parts of the rudder assembly.
- 14.5.3 The Contractor must ensure that the rudders are installed in good order and that the rudder coupling bolts, lower gudgeon bolts, nuts and the jumping collars screws are locked and to the satisfaction of the attending ABS surveyor.
- 14.5.4 The Contractor must touch up any damaged paint in this area, as per CCG paint schedule, and defined in the section 9.0 of this specification.
- 14.5.5 Upon completion of the inspection and final installation of the rudders and rudder stock, the Contractor must perform operational tests on the rudders to ensure that the steering system performs as required. All operational tests must be witnessed by the TA.

14.6 Deliverables

- 14.6.1 The Contractor must provide a report of the findings, work, and final condition for the work of Section 14.0, in accordance with the Inspection, Test and Trials Plan.

SOR #:	Specification	TCMS Field #:
Rudders (Survey Item)		

- 14.6.2 The Contractor must provide the TA and TI with the measurements taken from the pintle and carrier bearing clearances.
- 14.6.3 The Contractor must supply an as fitted drawing for each rudder assembly indicating the following information: the diameter of the rudder pintle prior to the installation of the stainless steel sleeve, the final machined dimensions of the stainless steel sleeve indicating the interference fit and the final installed outside diameter after the sleeve is shrunk into place.
- 14.6.4 The Contractor must supply Classification Society Type Approval documentation for all Thordon bearing products installed in this specification.
- 14.6.5 The Contractor must supply the dimensions of the pintle carrier bolts, and the carrier bolt holes.
- 14.6.6 The Contractor must supply the dimensions of the rudder stock liners in way of the lower guide bearings, at the top, middle and bottom of the liner in both the fore/aft and port/starboard directions for each position. The Contractor must supply the dimensions of the lower guide bearings at the corresponding positions on the liner and the clearances between the components.
- 14.6.7 The Contractor must supply the dimensions of the rudder stock liners in way of the radial bearing at the top, middle and bottom of the liner in both the fore/aft and port/starboard directions for each position. The Contractor must supply the dimensions of the radial bearings at the corresponding positions on the liner and the clearances between the components.

SOR #:	Specification	TCMS Field #:
Shaft Line and propellers replacement		

15.0 SHAFT LINE AND PROPELLERS REPLACEMENT

15.1 Identification

The Contractor must design and install new tail shafts, new mechanical shaft sea and new bearings. The new shaft line must be designed to mate with the existing engines and gearboxes and propellers.

15.2 References

15.2.1 Drawings

Drawing Number	Description
14-77-M4	Machinery Arrangement
83-50-M2	Shafting Arrangements & Details

15.2.2 Regulations

- 15.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 15.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 15.2.2.3 Hull Construction Regulation (C.R.C., c. 1431)

15.2.3 Standards

- 15.2.3.1 TCMS; TP 127E Electric Standards (2008)
- 15.2.3.2 TCMS; TP 7301E Stability, Subdivision and Load Line Standards

15.2.4 Quality Assurance Standards

- 15.2.4.1 CCG Specification for Electronic Technical Data Deliverables
- 15.2.4.2 CCG Computer Aided Design (CAD) using AutoCAD
- 15.2.4.3 Trim and Stability Book Production for CCG Vessels

15.3 Technical

15.3.1 General

- 15.3.1.1 The new shafts must be designed and approved by a Naval Architect or a Professional Engineer. The design must also be reviewed and approved by ABS.
- 15.3.1.2 The tail shafts must be designed/selected to match the existing propulsion engines and gearboxes and propellers.
- 15.3.1.3 The design of the shaft line must retain the existing stern tubes.
- 15.3.1.4 The Contractor is responsible for performing the blue-fit of both shafts/propeller contact zone. The Contractor must perform all necessary corrections to the shafts/propellers to demonstrate a contact surface of at least 80%.

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Shaft Line and propellers replacement		

15.3.1.5 The Contractor must supply all material and equipment to perform the work described in this section.

15.3.2 Shafts

15.3.2.1 The new tail shafts must be at a minimum, the same outside diameter as the existing shafts.

15.3.2.2 The new tail shaft must be made from either of Stainless steel 316 or harder material. The tail shaft material must be determine by the designer in order to meet the requirement of approval with the existing engines and must be approved by ABS

15.3.2.3 The new shaft must be approved and stamped by ABS before installation. The Contractor is responsible for involving ABS at all necessary steps of the design and the manufacturing to get approval.

15.3.2.4 The new shafts must be provided with recommended Thordon hard coated nickel-chrome-boron (NiCrB) shaft sleeves in the way of all the bearings.

15.3.3 Fixed Pitch Propellers

15.3.3.1 The contractor must provide and install two (2) new fixed pitch propellers.

15.3.3.2 Fixed pitch propeller pitch and size must be determined by the designer to match the specified requirement of performance with the new propulsion engines and gearboxes.

15.3.3.3 The new propellers must be made of Stainless steel 316 or other harder material.

15.3.3.4 The new propellers must be fitted to the shafts with the minimum surface of contact prescribed by the regulations. Blue fit to be witnessed by ABS surveyor and TA.

15.3.4 Shaft seal and packing

15.3.4.1 The Contractor must replace the existing stuffing boxes with new mechanical seals.

15.3.4.2 The mechanical seals must be Contractor supplied and they must be equipped with an inflatable emergency seal.

15.3.4.3 The Contractor is responsible for the installation of the new mechanical seals and must perform all the necessary connections to the existing ship system.

15.3.4.4 The Contractor must provide and install all the necessary ball valves and piping in order to allow the usage of each inflatable booth independently. The Contractor must also provide and install a new air pressure regulator exclusively for the use with the inflatable seals

SOR #:	Specification	TCMS Field #:
Shaft Line and propellers replacement		

15.3.5 **Bearings**

- 15.3.5.1 The Contractor must replace all the tail shaft bearings with all new Thordon 'River Tough series' bearings.
- 15.3.5.2 The Contractor must install the bearing in accordance with the manufacturer's instruction.
- 15.3.5.3 Bearing installation must be supervised and approved by the manufacturer's field service representative (FSR).
- 15.3.5.4 The Contractor must plan on performing line boring in the port stern tube in order to meet the manufacturer requirement for interference freeze fit installation.

15.4 **Proof of Performance**

15.4.1 **Plan Approval**

- 15.4.1.1 The Contractor must provide the following documents for ABS review and approval at least 4 week prior to the start of installation:

- Shaft line arrangement;

- Shaft line details;

- Torsional calculation;

- Vibration analysis;

- All other document, drawings or specification required by ABS for approval.

- 15.4.1.2 The documents for approval must be obtained before installation of the new equipment.

15.4.2 **Inspections**

- 15.4.2.1 The Contractor must ensure that the shafts and propellers are inspected by ABS and TA at all required steps of manufacturing and the installation.

15.4.3 **Certification**

- 15.4.3.1 The new equipment must be approved and certified by ABS.
- 15.4.3.2 Approval certificates must be delivered with the equipment.

15.5 **Deliverables**

15.5.1 **Documentation (Reports/Drawings/Manuals)**

The Contractor/ OEM must provide the TA one (1) electronic and one (1) paper copy of the following:

The Work Report, which will include without being limited to:

SOR #:	Specification	TCMS Field #:
Shaft Line and propellers replacement		

- i. The shafts, propellers and other components identification;
- ii. The Contractor's narrative report of the set to work and adjustments made complete with all the set to work check points and settings records sheets completed and signed by appropriate authorities for witnesses and/or acceptances; and
- iii. The Contractor's narrative report of the trials achieved complete with all the trial sheets completed and signed by appropriate authorities for witnesses and/or acceptances.

SOR #:	Specification	TCMS Field #:
Fuel Tanks (Survey Item)		

16.0 FUEL TANKS (SURVEY ITEM)

16.1 Identification

- 16.1.1 The Contractor must open, clean, and prepare the identified fuel tanks for ABS inspection and survey. The tanks must be visually inspected and must then be subjected to a pressure test. Upon completion of the work, the tanks must be returned to a state of operational readiness.
- 16.1.2 The quick-closing valves on the Port, Stbd and Aft tanks, as well as the return valves must be overhauled.

16.2 Reference

16.2.1 Equipment Data

Description	Location	Capacity
Tanks		
No. 1 Aft Fuel Tank	Frame 4-6	4 cubic meters
No. 2 Port Fuel Tank	Frame 16-24	9 cubic meters
No. 3 Stbd Fuel Tank	Frame 16-24	9 cubic meters
Valves		
	Type	Dimension
Aft Tank Quick closing	Spring Loaded Gate	3/4"
Aft Tank Gate Valve	Gate Valve	3/4"
Port Tank Outlet	Gate	1 1/4"
Port Tank Return	Gate	1 1/2"
Stbd Tank Outlet	Gate	1 1/4"
Stbd Tank Return	Gate	1 1/2"

16.2.2 Documents

Drawing Number	Description	Location
805-50-P3	Fuel Oil Piping Arrangement	Folder 16.0

16.2.3 Regulations

- 16.2.3.1 Canada Shipping Act 2001(2001, c.26)
- 16.2.3.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 16.2.3.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)
- 16.2.3.4 Canada Labour Code (R.S.C., 1985, c. L-2)
- 16.2.3.5 TP 14612 - Marine Occupational Health and Safety Program

SOR #:	Specification	TCMS Field #:
Fuel Tanks (Survey Item)		

16.3 Technical

- 16.3.1 The Contractor must document the fuel tank soundings of all fuel tanks onboard. The Contractor must remove the vessel's remaining fuel onboard, store the fuel and return it onboard after completion of the fuel tank inspections. The Contractor must bid on removing, storing, and returning to the vessel 12,000 liters of marine distillate diesel fuel.
- 16.3.2 Upon completion of this specification item, all fuel tanks must be returned to their sounding levels as they were upon arrival at the Contractor's facility.
- 16.3.3 The Contractor must open all tanks, ventilate the tanks, and must have a Marine Chemist or other qualified person certify each tank "safe to enter" prior to the start of the cleaning operation.
- 16.3.4 The Contractor must post Safe for Entry/Safe for Hot Work certificates at each tank opening in a clearly visible location as close to the entry as practical. These certificates must be signed by a Marine Chemist or other qualified person and must be valid for the duration that the tank is open.
- 16.3.5 The Contractor must clean all tanks and submit them for inspection by the attending ABS surveyor for a survey credit.
- 16.3.6 The Contractor must bid on removing and disposing of 1 cubic meter of sludge and debris from the fuel tanks; to be adjusted up or down by 1379 process.
- 16.3.7 All sludge and debris from the tanks must be disposed of ashore in accordance with Federal, Provincial and Municipal regulations in effect.
- 16.3.8 The Contractor must pressure test each tank to the requirements of Section: 'Hydrostatic Test Procedure' of this specification.
- 16.3.9 Upon completion of the cleaning and ABS survey, the Contractor must close all tanks, and use new Contractor supplied fuel oil/BIO DIESEL compatible gasket material (PTFE) on all manhole covers.
- 16.3.10 The Contractor must remove, disassemble and clean all valve and valve components of the spring-loaded drain valves. The valves must be disassembled and laid out for inspection by the TA.
- 16.3.11 The Contractor must grind all valve disc and valve seats after inspection. Final lapping must be done such that the valve discs have full contact with the valve seat.
- 16.3.12 The Contractor must perform hydrostatic testing of each valve at a pressure of 50 psi. All Tests must be witnessed by the TA and ABS.
- 16.3.13 The Contractor must re-assemble all valves with new Contractor supplied gaskets and packing. All valves must be installed and left in their closed position.

SOR #:	Specification	TCMS Field #:
Fuel Tanks (Survey Item)		

16.4 Proof of Performance

- 16.4.1 The Contractor must allow the TA the opportunity to examine all valves in their disassembled state.
- 16.4.2 The Contractor must allow the TA the opportunity to examine all tank internals prior to closing each tank.
- 16.4.3 The Contractor must ensure that all tanks remaining open for inspection are certified for entry for the duration they are open for access.
- 16.4.4 The Contractor must supply, fit, and subsequently remove blank connections where required for the pressure test of Section 23.0
- 16.4.5 Where blanks are available for use in the piping system the Contractor must ensure these are returned to the open position and replace all gaskets.

16.5 Deliverables

- 16.5.1 The Contractor must provide a report of the findings, work, and final condition of the work of Section 11 in accordance with the Inspection, Test and Trials Plan.
- 16.5.2 The Contractor must provide all waste oil and oily water disposal certificates to the TA prior to the completion of the contract.
- 16.5.3 The Contractor must provide copies of all tank "Safe for Entry" and "Safe for Hot Work" certificates to the TA prior to the close of the contract.
- 16.5.4 The Contractor must provide the ABS survey credit documentation for the work of Section **Error! Reference source not found..**

SOR #:	Specification	TCMS Field #:
Potable Water Tank (Survey Item)		

17.0 POTABLE WATER TANK (SURVEY ITEM)

17.1 Identification

17.1.1 The Contractor must open, clean, and prepare the identified potable water tanks for ABS inspection and survey. The tanks must be cleaned, visually inspected, repaired and must then be subjected to a pressure test. Upon completion of the work, the tanks must be returned to a state of operational readiness.

17.2 References

17.2.1 Equipment Data

17.2.1.1 List of tanks

Tank	Location	Volume	Area
Fwd Potable Water Tank	Frames 33 – 35	4.6 cubic meters	21m2

17.2.1.2 Potable water tank coating material is NSF-61 certified Portland cement designed for potable water tank and pipe lining

17.2.2 Documents

17.2.2.1 CCG Fleet Safety Manual Section 7A12 Potable water Quality

17.2.2.2 CCG Fleet Safety Manual Section 7B3 Entry into Confined Space

17.2.2.3 CCG Fleet Safety Manual Section 7B5 Lockout and Tag out

17.2.3 Drawings

Drawing Number	File Name	Location
CMS30-103-MI	Tank & Capacity Plan & Deadweight Scale	KEY Folder 13.0

17.2.4 Regulations

17.2.4.1 Canada Shipping Act 2001(2001, c.26)

17.2.4.2 TCMS; Marine Machinery Regulations (SOR/90-264)

17.2.4.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

17.2.4.4 Canada Labour Code (R.S.C., 1985, c. L-2)

17.2.4.5 TP 14612 - Marine Occupational Health and Safety Program

17.2.5 Quality Assurance Standards

17.2.5.1 CCG Specification for Electronic Technical Data Deliverables

17.2.5.2 CCG Computer Aided Design (CAD) using AutoCAD

17.2.5.3 NSF/ANSI/CAN61 Drinking Water System Components

SOR #:	Specification	TCMS Field #:
Potable Water Tank (Survey Item)		

17.3 Technical

- 17.3.1 The tanks must be inspected by the Contractor and the TA and the NACE Level 3 inspectors at section 1.28, and the total surface area for touch up and re-coating must be agreed upon.
- 17.3.2 The Contractor must quote on the removal of 1 ton of water and debris through the manhole covers.
- 17.3.3 The Contractor must open up, ventilate, certify for entry and work and clean all identified potable water tanks.
- 17.3.4 Tanks must be scraped and wire brushed clean of any loose coating. All debris, mud and other loose material must be removed and taken ashore. Power tooling or pressure washing will not be accepted.
- 17.3.5 The Contractor must have the work witnessed by the TA. After the work has been witnessed, the Contractor must reassemble the strainers and foot valves using new gaskets and after testing must re-install them in the respective tank from which they were removed.
- 17.3.6 The Contractor must supply a price quote on re-coating 50% of the total interior surface of all potable water tanks with 2 coats of cement wash. The cement wash must consist of Portland cement and water.
- 17.3.7 The Contractor must supply a price quote for a unit price per square meter. The final price must be adjusted up or down to reflect the actual work completed.
- 17.3.8 The Contractor must close all tank access covers after final inspection by the attending ABS surveyor and TA. The Contractor must replace all tank access cover gaskets with new 1/8 inch thick fiber reinforced neoprene gaskets suitable for potable water service
- 17.3.9 The Contractor must conduct a pressure test of the potable water tanks according to the requirements of Section 23.0
- 17.3.10 **Tank Disinfection**
- 17.3.11 The Contractor must supply the disinfection media and must disinfect the tanks according to the FSSM procedure 7.A.12 after the successful completion of the hydrostatic pressure tests.
- 17.3.12 All potable water tanks and pipes must be filled with hyper-chlorinated potable water for a period of 4 hours. The hyper-chlorinated water must have a free chlorine content of 50 ppm (part per million).
- 17.3.13 Following the 4 hour disinfection period, the Contractor must drain and flush the potable water tanks to attain the readings described in FSM 7.A.12 for the potable water. Readings must be obtained with water sitting in the tank for a minimum of 48 hours.

SOR #:	Specification	TCMS Field #:
Potable Water Tank (Survey Item)		

- 17.3.14 These readings must be verified by an independent laboratory that is provincially licensed to perform these tests on potable water. Copies of all final test results must be presented to the TA.
- 17.3.15 The Contractor must flush the water tanks until the free chlorine content of the water in the tanks drops to an acceptable level between 0.2 and 0.5 mg/L as specified in FSM 7.A.12.
- 17.3.16 The Contractor must dispose of all hyper-chlorinated water in accordance with Federal, Provincial, and Municipal Regulations in effect.
- 17.3.17 The Contractor must re-fill all potable water tanks to their initial tank soundings prior to undocking the vessel using a certified potable water source.

17.4 Proof of Performance

- 17.4.1 The Contractor must allow the TA the opportunity to examine all tank internals prior to closing each tank.
- 17.4.2 The Contractor must ensure that all tanks remaining open for inspection are certified for entry for the duration they are open for access.
- 17.4.3 The Contractor must blank all connections. The Contractor must be responsible for supplying, fitting and subsequent removal of blanks.
- 17.4.4 If water is used for the pressure test, the Contractor must drain the tanks afterwards. The Contractor must dispose of any water used for hydrostatic testing in accordance with Federal, Provincial and Municipal regulations in effect.

17.5 Deliverables

- 17.5.1 The Contractor must provide a report of the findings, work, and final condition of the work of this Section in accordance with the Inspection, Test and Trials Plan.
- 17.5.2 The Contractor must provide waste and hyper-chlorinated water disposal certificates to the TA prior to the completion of the contract
- 17.5.3 The Contractor must provide copies of all tank entry certificates to the TA prior to the completion of the contract.
- 17.5.4 The Contractor must provide the ABS survey documentation to the TA prior to the close of the contract.
- 17.5.5 The Contractor must provide the potable water laboratory reports to the TA prior to the close of the contract.

SOR #:	Specification	TCMS Field #:
Ballast and Sewage Tanks Inspection (Survey Item)		

18.0 BALLAST AND SEWAGE TANKS INSPECTION (SURVEY ITEM)

18.1 Identification

- 18.1.1 The Contractor must open, remove docking plugs, fire hose wash, and remove debris from the ballast and sewage holding tanks to clean and prepare the identified tanks for ABS inspection, pressure test and then return them to operational conditions.

18.2 Reference

18.2.1 Equipment Data

Description	Location	Capacity
Forepeak Ballast Tank	Frame 35-40	6 cubic meters
Sewage Holding Tank	Frame 3-4	1.5 cubic meters

18.2.2 Regulations

- 18.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 18.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 18.2.2.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)
- 18.2.2.4 Canada Labour Code (R.S.C., 1985, c. L-2)
- 18.2.2.5 TP 14612 - Marine Occupational Health and Safety Program

18.2.3 Quality Assurance Standards

- 18.2.3.1 CCG Specification for Electronic Technical Data Deliverables
- 18.2.3.2 CCG Computer Aided Design (CAD) using AutoCAD
- 18.2.3.3 Trim and Stability Book Production for CCG Vessels

18.3 Technical

- 18.3.1 The Contractor must bid on removing 0.5 cubic meters of solid debris from each ballast tank; to be adjusted up or down by 1379 process.
- 18.3.2 The Contractor must bid on removing 0.5 cubic meters of solid debris from the Forepeak ballast; to be adjusted up or down by 1379 process.
- 18.3.3 The Contractor must bid on removing 400 liters of sewage and sludge from each Sewage Holding Tank; to be adjusted up or down by 1379 process.
- 18.3.4 The Contractor must open all tanks, ventilate the tanks, and must have a Marine Chemist or other qualified person certify each tank safe to enter or safe for hot work as required, prior to the start of the cleaning operation.

SOR #:	Specification	TCMS Field #:
Ballast and Sewage Tanks Inspection (Survey Item)		

- 18.3.5 The Contractor must post Safe for Entry/Safe for Hot work certificates at each tank opening in a clearly visible location as close to the entry as practical. These certificates must be signed by a Marine Chemist or other qualified person and must be valid for the duration that the tank is open.
- 18.3.6 The Contractor must clean all tanks and must inspect all sounding pipes and remove any foreign materials from the sounding pipes. All sludge and debris from the tanks must be disposed of ashore in accordance with Federal, Provincial and Municipal regulations in effect.
- 18.3.7 The Contractor must submit the tanks for inspection by the attending ABS surveyor for a survey credit. Upon completion of the inspection the Contractor must close up all tanks using new 1/8-inch neoprene gaskets suitable for sea water service on all man-hole covers.
- 18.3.8 The Contractor must install all docking plugs using Contractor supplied rubber gaskets and must tighten these up in the presence of the TA.
- 18.3.9 The Contractor must pressure test each tank to the requirements of Section:23.0 'Hydrostatic Test Procedure' of this specification.
- 18.3.10 The Contractor must refill the ballast water tank to the arrival condition prior to undocking the vessel. The Contractor must supply only fresh water from a Municipal water supply for refilling the ballast tanks.

18.4 Proof of Performance

- 18.4.1 The Contractor must allow the TA the opportunity to examine all tank internals prior to closing each tank.
- 18.4.2 The Contractor must ensure that all tanks remaining open for inspection are certified for entry for the duration they are open for access.
- 18.4.3 The Contractor must blank all connections and must be responsible for supplying, fitting and subsequent removal of blanks for the pressure test of Section 23.0.
- 18.4.4 The Contractor must drain the tanks following the pressure test if water is used for the test. The Contractor must dispose of any water used for hydrostatic testing in accordance with all Federal, Provincial and Municipal regulations in effect.

18.5 Deliverables

- 18.5.1 The Contractor must provide a report of the findings, work and final condition of the work of Section 18.0 in accordance with the Inspection, Test and Trials Plan.
- 18.5.2 The Contractor must provide all sewage and waste disposal certificates to the TA prior to the close of the contract.

SOR #:	Specification	TCMS Field #:
Ballast and Sewage Tanks Inspection (Survey Item)		

- 18.5.3 The Contractor must provide all tank entry certificates to the TA prior to the close of the contract.
- 18.5.4 The Contractor must provide the ABS survey credit documentation for the work of Section 18.0.

SOR #:	Specification	TCMS Field #:
Annual Megger Test (Survey Item)		

19.0 ANNUAL MEGGER TEST (SURVEY ITEM)

19.1 Identification

- 19.1.1 The Contractor must megger test all the electrical circuits of the vessels power distribution system including the 12Vdc as well as generator's windings, transformers, motors, and all other permanent equipment onboard the CCGS Cove Isle.

19.2 Technical

- 19.2.1 All circuits must be isolated before testing.
- 19.2.2 All tests must be done in accordance with the TP-127.
- 19.2.3 The Contractor must use a certified megger and provide a copy of the calibration certificate.
- 19.2.4 The Contractor must record in a list all the circuits, designation numbers, name of circuit and the resistance values obtained.
- 19.2.5 Circuits found to be unacceptable are to be investigated and repaired to acceptable megger readings.
- 19.2.6 All the work associated with these defects must be negotiated under 1379 process and be approved before corrective work begins.

19.3 Proof of Performance

- 19.3.1 ABS inspection must provide credit for the insulation resistance test in Transport Canada Division 3 report.

19.4 Deliverables

- 19.4.1 The Contractor must Megger test all electrical circuits on the vessel and must record the readings obtained. The Contractor must update the vessel's 2022 electronic copy of the Megger report file. This report must be provided at commencement of the work.
- 19.4.2 The Megger Test Report must contain the Name and signature of the technician, Make, Model and serial number of the Megger used as well as a copy of the last calibration certificate. The report must also contain a narrative report of all the corrective work perform under this spec item.
- 19.4.3 The Megger Test Report must be provided to the TA in PDF, within 2 business days of the completion of the work contained in this specification item.

SOR #:	Specification	TCMS Field #:
Portholes, Windows and Doors replacement		

20.0 PORTHOLES, WINDOWS AND DOORS REPLACEMENT

20.1 Identification

- 20.1.1 The Canadian Coast Guard (CCG) has a requirement to replace one (1) door, one (1) window and one (1) porthole on the CCGS Cove Isle.
- 20.1.2 The Contractor will be responsible for the purchase and installation of the new doors, windows, and portholes, as described in the current section.
- 20.1.3 CCG also requires all the portholes, windows, and doors to be inspection on the CCGS Cove Isle.

20.2 Reference

20.2.1 Equipment Data

Drawing #	Description
C06120GA1	CCGS COVE ISLE GENERAL ARRANGEMENT

20.2.2 Regulations

- 20.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 20.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 20.2.2.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)

20.2.3 Standards

- 20.2.3.1 TCMS; TP 7301E Stability, Subdivision and Load Line Standards

20.2.4 Quality Assurance Standards

- 20.2.4.1 CCG Specification for Electronic Technical Data Deliverables
- 20.2.4.2 CCG Computer Aided Design (CAD) using AutoCAD
- 20.2.4.3 Trim and Stability Book Production for CCG Vessels

20.3 Technical

- 20.3.1 The Contractor is responsible for supply and installation of the described items under the current section.
- 20.3.2 All the doors, windows and portholes provided must be approved by a Classification Society and come with certificates of approval.
- 20.3.3 All the doors, windows and portholes must be made of aluminum in order to be compatible with the structure of the ship.

SOR #:	Specification	TCMS Field #:
Portholes, Windows and Doors replacement		

- 20.3.4 The Contractor is responsible for the final measurements of the door, porthole, and window before ordering. The dimensions in this specification are for indication purposes only.
- 20.3.5 **Condition Inspection**
- 20.3.5.1 As a part of this specification item, the Contractor must perform and inspection of the condition of all the doors, windows, and porthole on the vessel.
- 20.3.5.2 The Contractor must record the following element in his inspection report:
- 1- General Condition of the element (Door, Porthole, or window)
 - 2- Supporting frame and ship structure condition, including NDT testing
- 20.3.5.3 The Contractor must provide his findings in a written report including photos and NDT results for each element inspected.
- 20.3.6 **Door**
- 20.3.6.1 The Contractor must replace the STBD weather-tight entry door on the main deck.
- 20.3.6.2 The new door must be rectangular, and be of equal size or larger than the existing.
- 20.3.6.3 The new door dimension must retain the same deck to door clearance and fit in the space available.
- 20.3.6.4 The new door must be provided with a see through windowpane.
- 20.3.6.5 The new door latching system must be operated with a single lever.
- 20.3.6.6 The new door must be equipped with a doorknob and a separate dead bolt lock.
- 20.3.7 **Porthole**
- 20.3.7.1 The Contractor must replace the porthole located at the front of the house, in the galley.
- 20.3.7.2 The new porthole must be of identical size and fit in the existing opening.
- 20.3.7.3 The new porthole must be equipped with a water tight storm cover, similar to the existing design.
- 20.3.8 **Window**
- 20.3.8.1 The Contractor must replace the window located on the STBD side of the ship, in the Galley.
- 20.3.8.2 The new window must be of similar form and function as the existing.

SOR #:	Specification	TCMS Field #:
Portholes, Windows and Doors replacement		

20.3.8.3 The new window must be of identical size in order to fit in the existing opening.

20.4 Proof of Performance

20.4.1 Following installation, the Contractor must perform a 'chalk test' of all watertight and weathertight seals in order to prove seal contact on all newly installed elements.

20.4.2 All new welds must be inspected using NDT, all NDT test results must be presented in a report within 48h.

20.4.3 The Contractor must also perform a hose-down test, on all the new elements. Hose test is a test used to verify the tightness of joints with a jet of water. It is to be carried out with the pressure in the hose nozzle maintained at not less than 2,0 bar during the test. The hose nozzle is to have a minimum inside diameter of 12 mm and is to be situated no further than 1,5 m from the joint.

20.5 Deliverables

20.5.1 The Contractor must provide a report of the findings, work and final condition of the work in accordance with the Inspection, Test and Trials Plan.

20.5.2 The Contractor must provide the ABS survey credit documentation for the work.

SOR #:	Specification	TCMS Field #:
Central HVAC System replacement		

21.0 CENTRAL HVAC SYSTEM REPLACEMENT

21.1 Identification

- 21.1.1 The Canadian Coast Guard (CCG) has a requirement to replace the raw water-cooled Heating Ventilation and Air Conditioning (HVAC) system that supplies the CCGS Cove Isle accommodations and Wheelhouse.
- 21.1.2 The Contractor must provide and install the new HVAC unit, as described in the current section.

21.2 Reference

21.2.1 Equipment Data

- 21.2.1.1 Make: Carrier
- 21.2.1.2 Model: 50BW006500
- 21.2.1.3 Serial: L967314

21.2.2 Regulations

- 21.2.2.1 Canada Shipping Act 2001(2001, c.26)
- 21.2.2.2 TCMS; Marine Machinery Regulations (SOR/90-264)
- 21.2.2.3 TCMS; Vessel Pollution and Dangerous Chemical Regulations (SOR/2012-69)
- 21.2.2.4 Federal Halocarbon Regulations (SOR/2003-289)
- 21.2.2.5 Ozone- depleting Substances and Halocarbon Alternatives Regulations (SOR/2016-137)
- 21.2.2.6 Marine Occupational Health and Safety (SOR-2010-120)(

21.2.3 Standards

- 21.2.3.1 TCMS; TP 127E Electric Standards (2008)
- 21.2.3.2 Fleet Safety Manual – Use of Halocarbons (F.E.8)

21.2.4 Quality Assurance Standards

- 21.2.4.1 CCG Specification for Electronic Technical Data Deliverables
- 21.2.4.2 CCG Computer Aided Design (CAD) using AutoCAD

21.3 Technical

- 21.3.1 The Contractor must remove the existing HVAC unit and associated water pump.
- 21.3.2 The proposed HVAC unit and all subcomponents must be serviceable in Canada for parts and service. OEM service representative must be located

SOR #:	Specification	TCMS Field #:
Central HVAC System replacement		

- in Canada and available to travel in the Great Lake and St Lawrence, from Thunder Bay, ON to Gaspé, QC
- 21.3.3 The Contractor must provide new HVAC unit, water cooling pump and all new associated controls.
- 21.3.4 The new HVAC unit must be of similar cooling capacity than the existing and fit in the available space of 36 in wide x 64 in high x 26 inch deep. The Contractor must verify all measurements
- 21.3.5 The Contractor must consider the noise created or transmitted by the new equipment provided. The sound level of the HVAC system, operating at full capacity in either cooling or heating mode, must adhere to the limits set out in the MOHS regulations.
- 21.3.6 **The new HVAC unit must:**
- 21.3.6.1 Be self-contained with blower and compressor, similar form and function to the existing unit;
- 21.3.6.2 Be of suitable size and cooling capacity to achieve and maintain an interior temperature of 18 deg C, with an outside maximum temperature of 32 deg C and sea water temperature of 26.5 deg C.
- 21.3.6.3 Be of suitable capacity to work with the existing duct work of the vessel.
- 21.3.6.4 Operate on R410 or R32 refrigerants;
- 21.3.6.5 Have heating capability (heat pump);
- 21.3.6.6 Must be suitable for operation in marine environment;
- 21.3.6.7 Must operate on 240V AC, 3 phases, 60Hz;
- 21.3.6.8 Be provided with electronic thermostat that automatically switches between cooling and heating mode;
- 21.3.6.9 Must manage the operation of its water pump (start/stop).
- 21.3.7 **Removal and Inspection**
- 21.3.7.1 The Contractor must remove the existing HVAC unit, thermostat, and water pump.
- 21.3.7.2 The Contractor must inspect all the piping and ducting associated to the system.
- 21.3.7.3 The Contractor inspect all the piping associated with the system. The Contractor must provide UT readings for a total of 50 points through the piping system.
- 21.3.7.4 The Contractor must hire an HVAC specialist to inspect the Ducting for leaks and provide recommendations on how to improve air flow to the Wheelhouse and Galley.
- 21.3.7.5 For bidding purposes, all existing piping and ducting will be retained, all replacements resulting from the recommendations or failed inspections will be negotiated using 1379s.

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Central HVAC System replacement		

21.3.8 **Installation**

- 21.3.8.1 The Contractor must install the HAVC unit and associated components and make all connections to the retained piping and ducting.
- 21.3.8.2 The Contractor must electrically connect the HVAC unit and components to the ship using new Contractor supplied shipboard approved cables.
- 21.3.8.3 The Contractor must perform Megger readings on the all electrical components of the HVAC system that are subject to a megger test as per section 19.0. The Contractor must perform and record megger readings on those components.

21.4 Proof of Performance

- 21.4.1 The Contractor must provide heating season, cooling season and air volume load calculations for the HVAC systems as fitted on the CCGS Cove Isle, approved by a qualified HVAC engineer.
- 21.4.2 The Contractor must provide cooling load calculations for the refrigeration system as fitted on the CCGS Cove Isle, approved by a qualified refrigeration engineer.
- 21.4.3 The Contractor must provide a certificate of system compliance with halocarbon standards, regulations, and legislation in force for marine HVAC systems.
- 21.4.4 The Contractor must include the Test and Trial procedures to the Teat and Trial plan.

21.5 Deliverables

- 21.5.1 The Contractor must provide a report of the findings, work, and final condition of the work in accordance with the Inspection, Test and Trials Plan.
- 21.5.2 The Contractor must provide the ABS survey credit documentation for the work.

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Dock Trials and Sea Trials		

22.0 DOCK TRIALS AND SEA TRIALS

22.1 Identification

22.1.1 The Contractor must perform dock and sea trials for all machinery that is affected by the work of this specification. The Contractor must bid on conducting dock and sea trials over four days at 12 working hours each day.

22.2 Technical

22.2.1 Dock Trials

22.2.1.1 The Contractor must have sufficient personnel on-hand for the undocking of the vessel to attend to the requirements of this specification with regards to ensuring that all valves are verified as being properly seated and that the valve bonnets are not leaking as well as that all manholes and access covers to sea bay and sea chests are not leaking. Where leaks are discovered, the Contractor must have a plan in place to address the deficiencies prior to the flooding of the dock.

22.2.1.2 Prior to flooding the dock, the Contractor must perform a dock trial on the rudder system to ensure that the rudder carrier bearings are tight and that the rudders operate as designed and that neither rudder comes up hard or hits mechanical stops.

22.2.1.3 The Contractor must devise a plan of dock and sea trials that integrates the trial plan from any sub-contractors

22.2.2 Sea Trials

22.2.2.1 The Contractor must develop a Sea Trial plan that includes all the test required by the sub-contractors in their respective plans. During the Sea Trials, the Contractor must:

22.2.2.1.1 Monitor and record the shaft bearing temperature every 30 minutes;

22.2.2.1.2 The vessel must be operated until all shaft line bearing and oil temperatures have reached steady state.

22.2.2.1.3 If bearing temperatures do not stabilize, the trials must be discontinued until the Contractor can determine and rectify the problems.

22.2.2.2 Readings must be provided to the TA upon completion of the sea trial period.

22.3 Proof of Performance

22.3.1 The Contractor must provide the Dock and Sea Trials Plan no less than 2 weeks before the scheduled undocking.

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22.4 Deliverables

- 22.4.1 The Contractor must provide updated drawings for the unit, pump, and control interconnection, as well as all the internal drawings for the HVAC unit.
- 22.4.2 The Contractor must provide paper and electronic copies of the complete maintenance manual for every single component installed under this section.
- 22.4.3 The Contractor must provide a report of the findings, work and final condition in accordance with the Inspection, Test and Trials Plan.

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ANNEX I - Hydrostatic and Pneumatic Test Procedures		

23.0 ANNEX I - HYDROSTATIC AND PNEUMATIC TEST PROCEDURES

23.1 Identification

- 23.1.1 The Contractor must pressure test tanks and spaces according to this Section. The Contractor must provide in the bid price a cost for hydrostatically testing each tank and space named. The Contractor must provide an alternative cost for pneumatically testing each tank and space named.
- 23.1.2 At the pre-refit planning meeting required in Specification Section 1.0 the Contractor, the TA and ABS must agree on which specific tanks must be pressure tested and which method is to be used. The final price must then be adjusted as required. The ITT must be evaluated on the basis of 100% tanks to be tested hydrostatically.
- 23.1.3 The Contractor must provide all materials, labour and services required for the work of this section.

23.2 Technical

- 23.2.1 The Contractor must pressure test each tank after obtaining ABS survey credit for the inspection of each tank and space required in this Specification.
- 23.2.2 **Hydrostatic Testing**
- 23.2.2.1 The Contractor must hydrostatically test each tank with fresh water. The Contractor must perform all work involved and supply all necessary materials, fittings, hardware and labour required to:
- a) Prepare each tank for testing after completion of the inspection;
 - b) Perform the test;
 - c) Restore each tank to service conditions.
- 23.2.2.2 Each tank and space must be hydrostatically tested to a head of water not less than 2.44 m of water above the crown of the tank and space. This pressure must be verified with a water filled manometer.
- 23.2.2.3 The Contractor must provide a detailed price quote for each tank for the following work:
- a) Hydrostatic tank/space test;
 - b) Cost for hydrostatic test preparation;
 - c) Cost of storage of clean fuel oil and lubricating oils if they need to be removed from the vessel;
 - d) Disposal costs for the test water;
 - e) Restoration of the tank/space to service condition after the test. This must include the removal of all water from fuel and lube oil tanks.

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ANNEX I - Hydrostatic and Pneumatic Test Procedures		

- 23.2.2.4 The Contractor must dispose of all fresh water used for the tests in accordance with applicable Federal, Provincial, Municipal regulations. All water used for the testing of tanks for oil and oily water and spaces protected by soft coatings must be deemed to be water contaminated by oil.
- 23.2.2.5 Preparation must include:
- a) Inspection of the tank prior to closing;
 - b) Closing the tank;
 - c) Blanking all tank connections;
 - d) Supply and fitting of a U tube water column;
 - e) Supply and fitting of filling and draining connections, and any necessary pumps and pumping arrangements.
- 23.2.2.6 Testing must include:
- a) Filling of the tank and water column to the required head;
 - b) Holding the test for a period of 30 minutes;
 - c) Recording observations;
 - d) Determining the location of any leakage.
- 23.2.2.7 Returning to serviceable condition must include:
- a) Removal and disposal of all test water and drying of all fuel and lube oil tank surfaces;
 - b) Removing all blanks and restoring all connections to service condition;
 - c) Supply and install new pipe flange gaskets;
 - d) Supply and install new reinforced neoprene gaskets on access plates;
 - e) Removal and installation of docking plugs.
- 23.2.2.8 Each tank has at a minimum the following connections:
- a) Vent pipe or vent and overflow pipe;
 - b) Sounding pipe;
 - c) Fill and empty pipes and valves;
 - d) Tank electronic sounding connection.
- 23.2.3 **Pneumatic Test**
- 23.2.3.1 The Contractor must also provide a detailed price quote for each tank for the following work:
- a) Pneumatic pressure test of each tank/space;
 - b) Cost for pneumatic test preparation;
 - c) Cost of storage of clean fuel oil and lubricating oils if they need to be removed from the vessel;
 - d) Restoration of the tank/space to service condition after the test including the removal of blanking flanges.

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- 23.2.3.2 The Contractor must prepare and submit the test procedure for the approval of ABS and the TA at the planning meeting required in Section 1.0.
- 23.2.3.3 The Contractors must supply a water column manometer for all pneumatic tank/space tests. The water column must be sized in comparison with the air supply flow rate to prevent a tank pressure greater than 1.5 psi. The air supply arrangement must include a regulated air supply with shut-off valve, two pressure gauges on the downstream side of the regulator and a manual vent valve. The manual vent valve must have a flow capacity greater than the air supply.

23.3 Proof of Performance

23.3.1 Inspections

- 23.3.1.1 The Contractor must conduct the pressure tests in the presence of ABS and the TA.
- 23.3.1.2 The Contractor must submit a written test procedure to the TA prior to testing.

23.3.2 Testing/Trials

- 23.3.2.1 Prior to final closing of the tank and space the Contractor must demonstrate to the TA that the tank is ready to be returned to service condition. This must include the verification that all blanking devices have been removed, gaskets renewed, and all connections restored, and that all spaces are clean, dry, and free of debris and any foreign object.
- 23.3.2.2 The Contractor must perform the final closing of the tanks and spaces in the presence of the TA.

23.4 Deliverables

- 23.4.1.1 The Contractor must provide a report of the findings, work, and final condition of the work in this section, in the required formats and according to the Inspection, Tests and Trials Plan.
- 23.4.1.2 The Contractor must provide all waste and oily waste disposal certificates to the TA prior to contract completion.
- 23.4.1.3 The Contractor must ensure that where tank pressure tests are due of ABS survey a record and signature are received from the attending ABS survey for the survey credit of the inspected and tested tanks.