TECHNICAL SPECIFICATIONS

WASHINGTON STATE FERRIES

M.V. ELWHA DRYDOCKING
CONTRACT NO. 00-6887

TECHNICAL SPECIFICATIONS

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WASHINGTON STATE FERRIES

M.V. ELWHA DRYDOCKING
CONTRACT NO. 00-6887

TECHNICAL SPECIFICATIONS

For the following Technical Specifications, the Contractor is to provide all labor, material and equipment to accomplish each and every Bid Item unless otherwise specified.

The Specification Item sub-titles in brackets are for WSF internal use only, for Life Cycle Cost modeling. Bidders should ignore such bracketed sub-titles.

1. DRY-DOCK VESSEL
{MAINTENANCE}

M.V. ELWHA Vessel Particulars:
Length: 382'-2", Beam: 73'-2", Draft: 18'-9", Gross Tons: 2,813.

A. Drydock Vessel for cleaning, painting, inspections, the Work specified herein, and any necessary repairs.

B. Block spacing shall be at 12-foot centers. Within twenty-four (24) hours of docking, provide three (3) copies of the block position drawing to the WSF Inspector indicating the block positions used.

C. The Vessel shall be blocked to expose the previous docking block positions. **Attachment No. 2,** "Block Position Form" is showing previous blocking positions.

2. TEMPORARY SERVICE
{MAINTENANCE}

A. Install one (1) telephone on board in a location designated by the Vessel Staff Chief Engineer. The telephone is to have one (1) outside line with toll-free access to Seattle and vicinity and, if different, one (1) line for local numbers. The telephone shall have touch-tone service if available from the Contractor's telephone system.

B. Provide and maintain electricity, water, safe lighted gangway and trash removal services while Vessel is in the Contractor's facility.

C. Provide Safety and Security for the entire Vessel throughout this Contract period until such time as the WSF has accepted redelivery of the Vessel. Every reasonable precaution shall be taken to protect the Vessel from the hazards of fire, flooding, pilferage, malicious damage, and other events including cataclysmic phenomena of nature.

D. Provide and maintain comprehensive and effective fire prevention and fire detection, and fire fighting programs and systems sufficient to ensure the safety and integrity of the Vessel. Provide personnel trained in shipboard fire fighting techniques and also trained to cooperate with and assist local fire fighting organizations. Provide sufficient shore fire lines to ensure an adequate supply of fire fighting water, at sufficient pressure, and maintain an adequate number of tested fire-hoses aboard the Vessel to effectively fight fires at any location in the Vessel.

E. Provide and maintain portable fire extinguishers in sufficient quantity, and of the appropriate type, to combat local fires of any class. Provide sufficient fire watches, including roving watches as may be required, to ensure that fires that may be inadvertently started by welding sparks or heat, electrical malfunction, or spontaneous combustion are detected, reported and promptly extinguished.

3. SEA CHEST ANODES INSPECTION
{MAINTENANCE}

A. Open the four (4) anode covers located on top of the sea chests for inspection by the WSF Inspector and the Vessel Staff Engineer. (The covers weigh approximately 150 lbs. each and requires that two (2) electrical leads each be disconnected prior to anode removal and reconnected upon installation of the new anodes). Units are located ahead of the sea valves, two (2) per engine room. Protect deck from damage during this work Item.

B. Remove existing anodes and install new WSF supplied anodes. Close up access plates using new gaskets, and grommets. The removed anodes will place on the Vehicle deck and remain property of WSF.

C. Solas Fire Pump sea chest. Open, clean and paint as hull Item, and replace hull zinc (ZHS-23, 21.5 lbs.) (shipyard to supply zinc anode), and re install hull strainer plate, after approved inspection by the WSF Inspector and Vessel Staff Chief Engineer.

D. Prior to installing the new anodes, prepare the access cover plates, including the surface where the anode covers mount, to an SSPC-SP3 Power Tool Cleaning, and apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, 5 mils (DFT) each coat, for a total of 10 mils (DFT).

4. SEA VALVE INSPECTION
{MAINTENANCE}

A. Open the below listed sea valves and clean for inspection. Check valve disc to valve seat contact for proper seating using Prussian blue or other means which is satisfactory to the WSF Inspector and that meets Coast Guard Requirements. All valves shall be inspected by the WSF and USCG Inspectors, and the Vessel Staff Chief Engineer after cleaning, and prior to removal of bluing and closing up valves.

For the M.V. ELWHA:

LOCATION	SERVICE	TYPE	SIZE
#1 Engine Room, port	Main Sea Suction	Gate	10"
#1 Engine Room, stbd.	Main Sea Suction	Gate	10"
#2 Engine Room, port	Main Sea Suction	Gate	10"
#2 Engine Room, port	Main Sea Suction	Gate	10"
#7 Void	Hatch Drain	Check	1½"
#1 Motor Room, port	SCR Overboard	Gate	2"
#1 Motor Room, port Void	SCR Overboard	Check	2"
#1 Engine Room, port	#2 M.E. Overboard	Gate	5"
#1 Engine Room, port Void	#2 M.E. Overboard	Check	5"
#1 Engine Room, port	Fire & Sprklr. Pump Overboard	Gate	4"
#1 Engine Room, port Void	Fire & Sprklr. Pump Overboard	Check	4"
#1 Engine Room, port	Emergency Bilge Suction	Globe	5"
#1 Engine Room, port	Treatment Tank Inlet	Gate	10"
#1 Engine Room, port	Sea Chest Vent	Globe	¾"

LOCATION, cont'd	SERVICE	TYPE	SIZE
#1 Engine Room, stbd.	Sea Chest Vent	Globe	¾"
#1 Engine Room, stbd.	Gen. Overboard	Gate	3"
#1 Engine Room, stbd. Void	Gen. Overboard	Check	3"
#1 Engine Room, stbd.	Bilge Pump Overboard	Gate	4"
#1 Engine Room, stbd. Void	Bilge Pump Overboard	Check	4"
#1 Engine Room, stbd.	#1 M.E. Overboard	Gate	5"
#1 Engine Room, stbd.	#1 M.E. Overboard	Check	5"
#2 Motor Room	Sprinkler Pump Overboard	Globe/ Stop	2½"
#2 Motor Room	Sprinkler Pump Overboard	Butterfly	2½"
#2 Motor Room	Sprinkler Seachest Blowdown	Gate	2"
#2 Motor Room	Sprinkler Pump Seachest Suction	Angle Globe	3"
#2 Motor Room	Sprinkler Pump Seachest Vent	Gate	2"
#2 Steering Gear Room	Hatch Drain	Check	1½"
#2 Motor Room, stbd.	SCR Overboard	Gate	2"
#2 Motor Room, stbd. Void	SCR Overboard	Check	2"
#2 Engine Room, port	#4 M.E. Overboard	Gate	5"
#2 Engine Room, port Void	#4 M.E. Overboard	Check	5"
#2 Engine Room, stbd.	Fire & Sprklr. Pump Overboard	Gate	4"

LOCATION, cont'd	SERVICE	TYPE	SIZE
#2 Engine Room, stbd. Void	Fire & Sprklr. Pump Overboard	Check	4"
#2 Engine Room, port	Sea Chest Vent	Globe	¾"
#2 Engine Room, stbd.	Emer. Bilge Suction	Globe	5"
#2 Engine Room, stbd.	Treatment Tank Inlet	Gate	10"
#2 Engine Room, stbd.	Sea Chest Vent	Globe	¾"
#2 Engine Room, stbd.	Bilge Pump Overboard	Gate	4"
#2 Engine Room, stbd Void	Bilge Pump Overboard	Check	4"
#2 Engine Room, stbd	#3 M.E. Overboard	Gate	5"
#2 Engine Room, stbd Void	#3 M.E. Overboard	Check	5"

B. Sea valves shall be inspected for the following:

1. General material condition.
2. Valve disk to valve seat contact.
3. Proper mechanical operation.

C. All removed and new valves will be hydrostatically tested to the satisfaction of the WSF and Coast Guard Inspector prior to installing on Vessel.

D. After inspection, reassemble/install valves using new valve stem packing and new gaskets on all valve flange connections affected by this work.

E. Provide a written report for all repairs to existing valves and all new valves installed. Submit original and two copies to the WSF Inspector.

5. RUDDER INSPECTION, NO. 1 AND NO. 2 ENDS
{MAINTENANCE}

A. Erect staging or provide suitable personnel lifting devices on both sides of No. 1 and No. 2 End Rudders to accomplish all affiliated work required and inspections.

B. Drain and conduct a satisfactory pressure test of the rudders for leaks in the presence of the WSF and USCG Inspector, and the Vessel Staff Engineer. Pressure test will consist of using 42-inches of water with Manometer or 1.5 PSI on acceptable calibrated pressure gauge that has 1.5 at mid scale range. Accepted test is no leaks for one (1) hour. Within twenty-four (24) hours of completion of tests, provide three (3) copies of the test results to the WSF Inspector.

C. Take and record rudder bearings clearances on No. 1 and No. 2 End Rudders within 24 hours of drydocking the Vessel.

D. Open the Vehicle Deck cover plates on the upper Rudder Stock Bearing and take clearances. Close up cover with new countersunk stainless steel sockets head cap screws and new gaskets. Submit three (3) copies of a written report of findings to WSF Inspector within twenty-four (24) hours of taking readings.

6. PROPELLER INSPECTION, NO. 1 AND NO. 2 ENDS
{MAINTENANCE}

A. Erect, modify, and remove staging in area around No. 1 and No. 2 End Propellers as required to accomplish all affiliated work and inspections.

B. Polish the No. 1 and No. 2 End Propellers by power disk sanding using 80 grit or finer abrasive. Thoroughly clean Propeller blades and hub for nondestructive testing.

C. Inspect No. 1 and No. 2 End Propellers for cracks, damage and proper blade track. Conduct a nondestructive test using a qualified NDT Inspector, for surface cracks on the blades in the presence of the WSF and USCG Inspectors, and the Vessel Staff Chief Engineer, within two (2) days of dry docking. Submit three (3) copies of a written report of findings to the WSF Inspector within twenty-four (24) hours of test completion.

7. OUTER WAUKESHA SEAL REPLACEMENT, NO. 1 AND NO. 2 ENDS {MAINTENANCE}

NOTE:
Both the No. 1 and No. 2 End Propellers will have to be removed to accomplish the required work in this Item.

A. Erect, modify, and remove staging in the area around No. 1 and No. 2 End Propellers as required to accomplish all affiliated work and inspections.

B. Remove No. 1 and No. 2 Propellers.

C. Remove the existing outer Waukesha Seals and Liners. Replace with new WSF supplied outer Eagle Seals and Liners. Provide the services of an authorized Eagle Seal Service Representative during the installation of the new Seals and Liners. The Eagle Seal Service Representative is: Sound Propeller, 1608 Fairview Ave. E., Seattle, WA. 98102, Phone No: (206) - 325-5722.

D. Drain all oil from the outer Waukesha oil seal system, including the stern tube cavity. Dispose of oil (approximately **350 gallons**, each end). Clean the head tank and the bilge sump tank. Flush the piping from the head tank to the bilge sump tank by using ten (10) gallons of clean system oil poured down the piping from the head tank to the bilge sump tank. Clean flushing oil from the bilge sump tank. Close up the head tank and sump tank with new Contractor furnished fasteners and gaskets.

E. Install No. 1 and No. 2 Propellers, prior to installing inspect shaft taper, shaft key, propeller shaft nut and threads in presence of the WSF Inspector and Vessel Staff Chief Engineer. Propeller shaft nut hardening to be witnessed by the WSF and USCG Inspector, and the Vessel's Staff Chief Engineer.

F. Take Eagle Seal bearing wear down readings after installing seals, in the presence of the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of the written reports of the readings to the WSF Inspector. Upon completion of taking wear down readings, lock wire the liner and housing fasteners. Fill the outer seal with Hyperlube or STP.

G. Prior to installing the rope guards remove the existing zincs and replace with new zincs. Take run out readings on the face of the propeller and the counter bore for the seal. Dial in the outboard liner after propeller installation, run out not to exceed .005". Reading to be witnessed by the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of the readings to the WSF Inspector.

H. Using a feeler gauge to take stern tube bearing clearances. Exercise care with the feeler gauge so as not to break off leaves in the bearing. Submit three (3) copies of a written report of the readings to the WSF Inspector.

I. Fill the stern tube system with WSF furnished oil.

J. Transport the removed outer Waukesha Seals and Liners to the WSF Warehouse at 6th Ave. South, Seattle, WA. Inform the WSF Inspector 24 hours prior to transporting them. Provide the WSF Inspector with three (3) copies of the inventory list of transported equipment.

8. VOID TANK INSPECTION
{MAINTENANCE}

A. Provide the services of a Marine Chemist to certify voids "SAFE FOR WORKERS TO ENTER". The Vessel's crew will open the 32 manholes. The Vessel's crew will close up the manholes using new, Contractor furnished gaskets and cotton grommets.

Special Note

(ATTACHMENT NO. 1)

Area Preparation, Surface Preparation, Grit Blasting, Paint Coatings, and Inspection for Vessel's hull, curtain plates, casing and super structure shall be in accordance with Washington State Ferries' Marine Coating Specification 1/03 unless otherwise specified in the following Specifications.

9. FRESH WATER WASH
{MAINTENANCE}

A. Within twenty-four (24) hours upon drydocking the Vessel, perform a Low-Pressure Water Cleaning (LP WC) at **3,000 - 3,500 PSI** in accordance with SSPC-SP 12/NACE 5. The wand shall be held no more than 12-inches from surface being washed. The entire hull from the guard to the keel, including all horizontal and vertical surfaces of the guard, flat keel, rudders, sea chests and strainer plates, propellers and all other exterior components of the Vessel that is part of the Vessel below the guard shall be washed. The wash shall leave no visible growth or residue after the hull dries from washing.

B. Remove sea chest strainer plates prior to pressure wash. Prior to closing sea chests they shall be inspected by the WSF Inspector and the Staff Chief Engineer. Reinstall strainer plates upon completion of all related work.

10. PREPARATION OF VESSEL HULL
{MAINTENANCE}

NOTE:
Care shall be taken to avoid damage to the "Capac" anodes and reference cells. The anodes are located at frame 54 Port and Starboard, both Ends, 9' above the keel. The reference cells are located on the Starboard side toward the No. 1 End and Port side toward the No. 2 End.

A. Install protective covering on propellers, propeller bearings, rudder bearings, exposed shafting, CAPAC anodes and reference cell, all through-hull penetration and entrance ways to protect and prevent surface preparation material from causing damage or entering Vessel. Blank the main sea suction openings from the inside while the valves are removed for maintenance, so the valve mounting flange may be painted on the inside diameter (ONLY WHEN REMOVED FOR SEA VALVE INSPECTION or Replacement).

B. Conduct a pre-blast inspection with the WSF Inspector and the Vessel Staff Chief Engineer.

11. BLASTING OF THE HULL
{MAINTENANCE}

NOTE:
For bidding purposes assume **5,000 Square Feet** of hull, will require Grit Blasting to SSPC-6, Commercial Blast Cleaning. Upon completion of hull Grit Blasting, the Contract will be adjusted upward or downward to account for the actual scope of Grit Blasting authorized by the WSF Inspector.

NOTE:
The Contractor shall have the option to UHP-WJ4, Ultrahigh-Pressure Water Jetting only if the hull profile is taken and is within the required profile in **Attachment No. 1** and approved by the WSF Inspector.

A. Prepare areas of abrasion and corrosion on the hull from the top of the guard to the keel, including flat keel, sea chests, strainer plates and rudders, to an SSPC-SP6, Commercial Blast Cleaning.

B. The ANTI-FOULING coating, for at least two inches (2”) bordering the blasted area, shall be removed to existing ANTI-CORROSIVE coating and feathered to a smooth surface.

12. ANODE AREA CAPASTIC REPAIR
{MAINTENANCE}

NOTE:
For bidding purposes, assume that **25 Square Feet** will require repair. The capastic shall be applied to a minimum thickness of ⅛ inch in the area of the shield out from the faired in area around the anode. The capastic shall be troweled so as to achieve a smooth overall surface.

A. Renew capastic around the CAPAC anodes using 'Capastic' epoxy troweling compound made by ELECTROCATALYTIC, INC.

B. Build up a minimum of 22 mils DFT of epoxy Anti-Corrosion coating over the capastic areas and the secondary dielectric shield areas.

13. PAINTING OF VESSEL HULL, ANTI-CORROSION COATING
{MAINTENANCE}

NOTE:
For bidding purposes assume that **5,000 Square Feet** of the hull will require the ANTI-CORROSION COATING. The Contract will be adjusted upward or downward using the square footage determined in grit blasting of the Hull Item.

A. Apply one (1) coat of INTERNATIONAL Intertuf 262 Series epoxy, Red, to a minimum of 5 mils (DFT) to surface areas prepared in the, Blasting of the Hull Item.

B. Apply one (1) coat of INTERNATIONAL Interguard 262, Buff, to a minimum of 5 mils (DFT) of contrasting color to all surfaces painted in paragraph "A" of this Work Item.

14. PAINTING OF VESSEL HULL, BELOW WATERLINE, ANTI-FOULING (SPOT COAT)
{MAINTENANCE}

NOTE:
For purpose of bidding assume that **3,000 Square Feet** of the hull will require the FIRST coat of ANTI-FOULING coating. The Contract will be adjusted upward or downward using the square footage determined in grit blasting of the Hull Item.

A. Apply one (1) coat of INTERNATIONAL Interspeed Anit-fouling, BRA 640 RED, to a minimum of 4 mils DFT to all surfaces painted below the waterline in the Painting of Vessel Hull, Anti-Corrosion Coating Item.

15. PAINTING OF VESSEL HULL, BELOW WATERLINE, ANTI-FOULING (FULL COAT)

{MAINTENANCE}

A. Apply one (1) full coat of INTERNATIONAL Interspeed Antifouling 642, black, to a minimum of 6 mils (DFT) to all surfaces of hull below the waterline.

16. DRAFT AND HULL MARKINGS

{MAINTENANCE}

A. Repaint all draft marks and underwater hull markings, using INTERNATIONAL Interlux Y5584, Shark White**.**

17. PAINTING OF VESSEL HULL, ABOVE THE WATERLINE

{MAINTENANCE}

NOTE:
For purpose of bidding assume that **2,000 Square Feet** of hull above the waterline will require painting with WSF Green. The Contract will be adjusted upward or downward using the square footage determined in grit blasting of the Hull Item.

A. Apply one (1) coat of INTERNATIONAL Intercare 755, WSF Green, to a minimum of 2 mils (DFT) to all surfaces prepared above water line in Painting Of Vessel Hull, Anti-Corrosion Coating Item.

18. PAINTING OF VESSEL GUARD

{MAINTENANCE}

A. Apply one (1) coat of INTERNATIONAL Intertuf 262, Black, to a minimum of 5 mils (DFT) to the entire guard.

19. VACANT

20. SEWAGE TANKS PRESERVATION

{MAINTENANCE}

NOTE:
Capacity of the sewage holding tanks is approximately 10,400 gallons total, 5,200 gallons each tank. The tanks will be pumped down prior to arrival of the Vessel at the Contractor's facility. However, the Contractor is responsible for disposing of whatever effluent, sludge or accumulation remains. It should be considered HAZARDOUS in that sludge may contain harmful bacteria and emit poisonous and flammable gasses.

A. Clean, sanitize, ventilate and provide lighting in both sewage tanks.

B. Provide two (2) sani-cans on deck and required servicing until all affiliated work is complete.

C. The sewage holding tanks shall be opened, cleaned, sanitized and certified to be gas and toxic vapor free, and obtain a Marine Chemist certificate for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the work. Inspect the interior of the tanks for deteriorated coatings and fittings. Submit a written report of the findings to the WSF Inspector. Upon completion of all work, close up the tanks using new fasteners, washers, grommets and gaskets.

21. PREPARATION AND PAINTING OF SEWAGE TANKS
{MAINTENANCE}

NOTE:
For bidding purposes, assume **400 Square Feet** of coatings will require surface preparation and re-coating. Each tank will need approximately 200 square feet of paint repair. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a total minimum of 10 mils (DFT).

22. PILOT HOUSE SECURITY INSTALLATION
{SECURITY SYSTEM}

A. Install Pilothouse Security, using as guidance, **Attachment No. 4,** WSF Dwg. 8204-639-005-01, M/V ELWHA Pilothouse Security Modifications to the No. 1 and No. 2 Pilothouses.

B. Remove one (1) ladder designated by the WSF Inspector from each end. Fill in the railing using schedule **40 galvanized 1 ¼ inch** pipe.

C. Enclose the remaining ladder at each end with a wire mesh enclosure. The uprights shall be **1 ¼ inch schedule 40** galvanized pipe and shall reach from the upper passenger deck to the underside of the Texas deck. The enclosure shall extend **40-inches** beyond the base of the ladder to provide a landing. The wire screen for the enclosure shall be **stainless steel, type 316L, 1" X 1" X 0.12"**. The door will swing out onto the Upper passenger cabin deck.

D. Prior to welding to the upper passenger deck remove the insulation from the overhead of the lower passenger cabin. Restore the insulation when all work is completed.

E. The lock sets and closure devices will be provided by WSF.

F. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning. Apply a primer to all galvanized surfaces prior to the coating system. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT). Topcoat with INTERNATIONAL Intercare 755 series at a minimum of 2 mils (DFT) of proper color, to all prepared areas.

23. MARINE EVACUATION SYSTEM (MES) FLOAT FREE MODIFICATIONS

{SUBCHAPTER W 95550F}

A. Perform the modifications to the Marine Evacuation System (MES), using as guidance, **Attachment No. 5,** WSF Dwg. No. 8204-505-016-02, Titled "M.V. ELWHA, Float-Free Modifications for Marine Evacuation & Details"; Rev.-, dated, 12/7/04.

B. Clean and gas free the voids associated with the work, as necessary, and obtain a Marine Chemist certificate for "SAFE FOR WORKERS" and "SAFE FOR HOT WORK". Maintain the certificate during the course of the work.

C. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT). Topcoat with INTERNATIONAL Intercare 755 series at a minimum of 2 mils (DFT) of proper color, to all prepared areas.

24. PREPARATION AND ANTI-CORROSIVE COATING OF PAINTED WSF GREEN ABOVE THE VEHICLE DECK

{MAINTENANCE}

NOTE:

For bidding purposes, assume that **1,200 Square Feet** of existing Painted Green surfaces above the vehicle deck will require SSPC-SP3, Power Tool Cleaning, staging may be required for some areas. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Prepare painted GREEN surfaces above the vehicle deck to an SSPC-SP3, Power Tool Cleaning. This includes only Port and Starboard Exterior Curtain Plate's, No. 1 and No. 2 Pilothouse Visor (Topside only) and the amidship Exhaust Stacks. Amount of area will be as authorized by the WSF Inspector.

B. Areas prepared by this Item shall be coated with two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) each coat. The back sides, corners and sharp edges of all angles, rat holes, weld seams, scallops, and beams shall be hand-striped with a brush for the Intertuf 262 coats.

25. PAINTING OF WSF GREEN ABOVE THE VEHICLE DECK {MAINTENANCE}

A. Apply one (1) coat of INTERNATIONAL Intercare 755, WSF Green, to a minimum of 2 mils (DFT) to areas painted Green on the Port and Starboard Exterior Curtain Plate's, No. 1 and No. 2 Pilothouse Visor (Topside only) and the amidship Exhaust Stacks.

26. NO. 1 AND NO. 2 OIL BILGE TANKS, CLEAN AND INSPECT {MAINTENANCE}

A. Open, drain and remove all waste oil and water from Tanks. Clean tanks to obtain a Marine Chemist certificate for "SAFE FOR WORKERS" and maintain the certificate during the course of the work.

B. Perform an ultrasonic survey of the tank's steel plating thickness in various locations, estimate 40 shots per tank, areas shall be agreed to by the WSF Inspector and the survey shall be performed in the presence of the WSF Inspectors. The readings shall be taken by a qualified NDT Inspector. Provide preliminary report within 24 hours after taking readings.

NOTE:
The readings may be taken without paint being removed if appropriate equipment is being used and is approved by the WSF Inspector.

C. Provide the WSF Inspector with three (3) copies of the report in tabular form, identifying the locations of readings by location, original plate thickness, audio gauge reading taken, and percent wastage. Attach a schematic showing the locations shots were taken and thickness found.

27. NO. 1 AND NO. 2 OIL BILGE TANKS, PAINT PRESERVATION {MAINTENANCE}

NOTE:
For bidding purposes, assume **80 Square Feet** of coatings will require surface preparation. (Each tank is approximate 994 Gal., 4' X 10'9", 160 Sq. Ft.) The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning. To all areas prepared apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT).

28. SATELLITE COMPASS INSTALLATION
{NAVIGATION 955556K}

A Install Antenna and Antenna Foundations using as guidance **Attachment No. 6,** WSF Dwg. No. 8204-647-015-01, Titled M.V. Elwha "Antenna Foundations For SC 110 Satellite Compass Location and Construction Details"; Rev.-; Dated 10 Nov 04.

B. Install electrical system using as guidance **Attachment No. 7**, WSF Dwg. No. 8204-647-094-01, Titled "M.V. Elwha Satellite Compass Installation Wiring Diagram"; Rev -; Dated 11/02/04.

C. Install new Bulkhead penetration on the Pilothouse Aft bulkhead as indicated on Attachment No. 7, Wiring Diagram.

D. Provide lifting service for loading on and off all equipment necessary.

E. Prepare all areas affected by this work to an SSPC-SP 3, Power Tool Cleaning.

F. To all areas prepared, apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT). For exterior repaired areas, apply International Intercare at a minimum of 2 mils (DFT) of matching color.

29. RADAR PLATFORMS MODIFICATIONS, NO. 1 AND NO. 2 PILOTHOUSES
{NAVIGATION 955556K}

A. Remove the outer angle of the inboard flange of deck foundation for the radars in both Pilothouses.

B. Furnish and install one (1) new MCT Nelson RGA No.6, Aluminum, deck penetration under the outboard radar in each Pilothouse.

C. Trim lower edge of new riser to fit around inboard radar deck MCT.

D. Provide a lifting service for placing new equipment to the pilothouse and the removal of equipment from the pilothouse.

E. All electrical and connection of cables will be accomplished by WSF Vendor. In addition, the Vender will remove radars, platforms, risers, cable removals and connections, all re-installation of equipment, testing and commissioning of the Radar system.

30. REPLACE NO. 1 AND NO. 2 INBOARD SHAFT SEAL ELEMENTS
{MAINTENANCE}

A. While the oil is drained for the outer seals replacement Item, disassemble the No. 1 and No. 2 inboard seal and liner, and remove the existing seal elements and replace with new "**Buna**" seal elements.

B. Reassemble the No. 1 and No. 2 Inner Waukesha seal and liner. Replace with new Contractor supplied "**Buna**" seal elements. Provide the services of an authorized seal Service Representative during the installation of the new seal. The seal Service Representative is: Sound Propeller, 1608 Fairview Ave. E., Seattle WA. 98102, Phone No: (206) - 325-5722.

C. Dial in the liner/clamp ring. Total indicated run out not to exceed .005". Reading to be witnessed by the WSF Inspector and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report of the readings to the WSF Inspector.

D. Inspect for leaks upon refilling of oil system and after rotating shaft. No leakage will be accepted. All to be witnessed by WSF Inspector and Vessel Staff Chief Engineer.

31. NO. 1 END PROPELLERS REPAIR
{MAINTENANCE}

A. Erect, modify, and remove staging in area around No. 1 End propellers as required to accomplish all affiliated work and inspections (As in Item 7).

B. Transport No. 1 End propeller to a propeller repair facility/shop for a pitch check and crack inspection, and any repairs as required.

C. Conduct a nondestructive test for cracks in area of propeller taper and keyway, and blade surfaces. Inspections and test to be accomplished in the presence of the WSF and USCG Inspectors, and the Vessel Staff Chief Engineer. Submit three (3) copies of a written report within twenty-four hours of inspection to WSF Inspector. Upon completion of inspection and necessary repairs, transport propellers back to the Vessel and reinstall.

32. NON-SKID PAINTING, PREPARATION AND SPOT COAT
{MAINTENANCE}

NOTE:
For bidding purposes, assume that a total of **600 square feet**, in various areas will require preparation and painting. Upon completion of the preparation, the Contract will be adjusted upwards or downwards to account for the actual area authorized by the WSF Inspector.

A. Prepare various areas, as directed by the WSF Inspector, throughout the Exterior Promenade Decks and Bridge Wing of the Vessel to an SSPC-SP 3, Power Tool Cleaning.

B. Apply two (2) coats of AMERICAN SAFETY, MS-7CZ Surface Primer Gray, to a minimum of 4 mils (DFT), each coat, for a minimum total of 8 mils (DFT), to all areas prepared in this Item.

C. Apply a coat of American Safety AS-150, Pedestrian Grade Epoxy Anti-Slip Coating, Haze Gray, to cover the area painted above.

33. PREPARATION AND ANTI-CORROSIVE COATING OF PAINTED BLACK SURFACES ON AMIDSHIPS EXHAUST STACKS

{MAINTENANCE}

NOTE:
For bidding purposes, assume that **100 Square Feet** of existing Painted Black surfaces on Amidships Port and Starboard exhaust Stacks will require SSPC-SP3, Power Tool Cleaning, staging may be required for some areas. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

A. Prepare painted BLACK surfaces on Amidship Port and Starboard exhaust Stacks to an SSPC-SP3, Power Tool Cleaning. Amount of area will be as authorized by the WSF Inspector.

B. Areas prepared by this Item shall be coated with two (2) coats of INTERNATIONAL Intertuf 262, to a minimum of 5 mils (DFT) each coat of contrast colors.

34. TOP COAT PAINTING OF THE BLACK ON AMIDSHIP EXHAUST STACKS

{MAINTENANCE}

A. Apply one (1) coat of INTERNATIONAL Intercare 755, WSF Black, to a minimum of 2 mils (DFT) to all the area that is painted Black on the Port and Starboard amidship Exhaust Stacks.

35. NO. 1 ENGINE ROOM TREATMENT TANK REPAIR

{MAINTENANCE}

A. Open, drain and remove all water from Treatment Tank. Clean tank to obtain a Marine Chemist Certificate. Obtain a Marine Chemist Certificate for "SAFE FOR WORKERS and SAFE FOR HOT WORK" and maintain the Certificate during the course of the work.

B. Perform an ultrasonic survey of the tank's steel plating thickness in various locations, estimate 20 shots. Areas shall be agreed to by the WSF Inspector and the survey shall be performed in the presence of the WSF Inspectors. The readings shall be taken by a qualified NDT Inspector. Provide preliminary report within 24-hours after taking readings.

NOTE:
The readings may be taken without paint being removed if appropriate equipment is being used and is approved by the WSF Inspector.

C. Provide the WSF Inspector with three (3) copies of the report in tabular form, identifying the locations of readings by location, original plate thickness, audio gauge reading taken, and percent wastage. Attach a schematic showing the locations shots were taken and thickness found.

D. Weld up the pitted area, approximately one (1) sq. ft, as agreed to by the WSF Inspector and Vessel Staff Chief Engineer.

NOTE:
For bidding purposes, assume that 5**0 Square Feet** will require SSPC-SP3, Power Tool Cleaning, staging may be required for some areas. The Contract will be adjusted upward or downward to account for the actual area authorized by the WSF Inspector.

E. Prepare all areas that is effected by this work, internal and external surfaces, of the treatment tank to an SSPC-SP 3, Power Tool Cleaning. To all areas prepared, apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT).

F. Apply two (2) full coat of INTERNATIONAL Interspeed Antifouling 642, black, to a minimum of 6 mils (DFT) each coat, to all internal surfaces.

36. CLEANING OF ALL SEA CHEST VENT LINES
{MAINTENANCE}

A. Clean all sea chest vent lines of all sea growth.

B. Prepare all internal surface areas of Vent Lines to an SSPC-SP 3, Power Tool Cleaning. To all areas prepared, apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a total of 10 mils (DFT).

C. Apply two (2) full coat of INTERNATIONAL Interspeed Antifouling 642, black, to a minimum of 6 mils (DFT) each coat, to all internal surfaces.

37. WELD REPAIR OF BROKEN CABLE HANGER IN NO. 2 ENGINE ROOM

{MAINTENANCE}

A. Weld repair the broken Cable Hanger above the No. 3 Engine.

B. Obtain a Marine Chemist Certificate for "SAFE FOR WORKERS and SAFE FOR HOT WORK" and maintain the certificate during the course of the work.

C. Provide protection to prevent any damage from welding of Cable Hanger, this includes protection of machinery, cables, insulation, bilges and etc.

D. For all painted surfaces affected by this work prepare to an SSPC-SP 3, Power Tool Cleaning. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT). Apply one (1) coat of INTERNATIONAL Intercare 755, color to match the surrounding area, to a minimum of 2 mils (DFT).

38. YARD ASSISTANCE FOR REPLACEMENT OF TURBO CHARGERS

{MAINTENANCE}

NOTE:

Eagle Harbor employees will be replacing the turbo chargers and associated work. Remove No. 2 Engine room deck access hatch and re-install when all work is completed for Turbo Chargers. After reinstalling, conduct a water hose test to ensure no water leakage into the engine room. Provide four (4) Crane lifts for turbo charger replacement.

39. ADJUSTMENT OF NO. 1 AND NO. 2 END STAIRWAY COAMING

{MAINTENANCE}

Cut loose the taper plate that is attached to the coaming and deck at the top of the ladder between the upper passenger deck and the Texas Deck on the No. 1 (starboard side) and No. 2 End (port side). Adjust the 2-inch top step deck coaming to 1" high and reattached the taper plate to the deck and adjusted coaming height.

For all painted surfaces affected by this work, prepare to an SSPC-SP 3, Power Tool Cleaning. Apply two (2) coats of INTERNATIONAL Intertuf 262 series Epoxy, to a minimum of 5 mils (DFT) each coat for a minimum total of 10 mils (DFT). Apply one (1) coat of INTERNATIONAL Intercare 755, color to match the surrounding area, to a minimum of 2 mils (DFT). Non skid will be applied as part of Item 32, "Non-Skid Painting, Preparation and Spot Coat.

40. PRESSURE WASH PAINTED GREEN SURFACES ABOVE THE VEHICLE DECK AND EXHAUST STACKS

{MAINTENANCE}

A. High pressure water wash using fan jet tips at a minimum 3,000 psi to all the Painted Green surfaces on the Port and Starboard Curtain Plate, No. 1 and No. 2 Pilothouse Visor (topside only) and all the surfaces of the Port and Starboard amidship Exhaust Stacks, using INTERNATIONAL GMA 571 OIL AND GREASE REMOVER in accordance with the manufactures instructions. The wash wand nozzle shall be held a maximum of 12-inches from the surface being washed.

B. Clean up all areas and decks affected by this work, ensure there is no wasted material or paint chips surrounding the work areas.

(END)