

# HERRON ISLAND FERRY TERMINAL DOLPHIN REPLACEMENT

## ADDENDUM NUMBER 2 February 9, 2017

**NOTE: FAILURE TO ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID FORM DOES NOT AFFECT THE BIDDER'S OBLIGATION FOR COMPLIANCE.**

### PROJECT MANUAL

Bid Form

Revise Article 6.03 on page 8 to read:

Bidder agrees to complete the Work within ~~140~~ **200** calendar days of receipt of the Notice to Proceed, in accordance with the terms of this bid package. This period of time shall be the basis of calculation of liquidated damages. ~~Reduced time to completion shall be used as the basis of selecting between bids with similar prices, defined as those within 5% of each other.~~

Owner-Contractor Agreement

Revise Article 4.02 A. Contract Times: Dates, on page 1, with the following:

The Work will be substantially completed ~~on or before September 29, 2017~~ **within 200 calendar days of NTP**, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions ~~on or before October 27, 2017~~ **within 230 calendar days of NTP**.

Supplementary Conditions

Add the following to SC-6.03.G Additional Insureds:

The Washington State Department of Natural Resources, its elected and appointed officials, agents, and employees shall be named as additionally insured on the Contractor's Builder's Risk insurance for the duration of the project.

### CONTRACT DRAWINGS

Sheet No. 16 – General Notes

Replace sheet 16 with Revision 2 sheet 16.

Allows for 85% zinc / 15% aluminum spray metal coating, or pure zinc coating.

Sheet No. 17 – General Notes

Replace sheet 17 with Revision sheet 17.

Adds clarification on pile proofing and impact driving requirements for the dolphin vertical and batter bearing piles.

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### FOR INFORMATION ONLY

<b>Engineer's Estimate:</b>	The Engineer's Construction Cost Estimate is between \$1,300,000 and \$1,600,000.
<b>Bid Due Date &amp; Time:</b>	There is no change to the Bid Due Date and Time. Bids Due: Wednesday, February 15, 2017 @ 2:00 PM
<b>Mandatory Pre Bid Meeting:</b>	Per the Instructions to Bidders, Article 6.01 Pre-Bid Conference, "Bidders are required to attend and participate in the conference."  For a submitted bid to be considered responsive, bidder must have attended the pre-bid meeting. The Pre-Bid Meeting Sign In List is attached, for reference.
<b>Plan Holders List:</b>	Updated Plan Holders List dated February 9, 2017 is attached, for reference.

**END OF ADDENDUM NO. 2**

GENERAL NOTES

DESIGN CRITERIA

APPLICABLE CODES

All local codes plus the following are part of these General Notes.

- AISC – American Institute of Steel Construction. Specification for Structural Steel Building, 14th Edition (AISC 360–10).
- ASCE – American Society of Civil Engineers. Minimum Design Loads for Buildings and Other Structures (ASCE 7–10).
- ASTM – American Society of Testing and Materials. Annual Book of Standards.
- AWS – American Welding Society. Structural Welding Code – Steel (AWS D1.1).
- ICC – International Code Council. International Building Code 2012 (IBC–12).
- PIANC – Permanent International Association of Navigation Congresses. Guidelines for the Design of Fender Systems.
- SSPC – Steel Structures Painting Council. Steel Structures Painting Manual.

DESIGN VESSEL

Name: MV Charlie Wells  
Gross Tonnage: 99 long tons  
Length (LOA): 72 feet  
Beam: 40 feet  
Operating Freeboard: 3 foot, min. to 5 foot, max.

Ferry service will continue to operate during construction. Contractor shall accommodate operations by staying clear of the ferry slip and shall demolish existing dolphins in a phased sequence to provide continuous ferry berthing at the slip. Only one dolphin at a time shall be removed and in a sequence as required to maintain service. Contractor shall develop a site specific safety plan for his crew and the ferry crew and passengers. This safety plan shall be submitted to the Owner for approval prior to mobilizing to the site.

On a limited basis, the Contractor may request occasional cancellation of ferry runs to assist in construction activities and/or safety. Any requests to cancel a regularly scheduled ferry run shall be made a minimum of two weeks in advance to provide appropriate notification to users. Request shall be made to the ferry captain and on-site owner's representative for approval.

Ferry boat operators shall take special care in berthing during construction. Operator shall coordinate with Contractor and use dolphins still intact while work on adjacent dolphins is underway. Ferry boat will be used as a pile driving template for the new fender piles. Operator will assist Contractor by positioning and holding position of vessel during installation of fender piles. Ferry operator and crew shall follow the Contractor's site specific safety plan.

ESTIMATED BERTHING ENERGIES AND APPROACH VELOCITIES

BERTHING TYPE	DAMAGE/WEAR ESTIMATE	ESTIMATED ENERGY	APPROACH VELOCITY
Typical	Normal Wear	5 foot–kips	0.9 knots
Moderate	Minor Fender Damage Possible	14 foot–kips	1.5 knots
Hard	Fender Damage Expected	27 foot–kips	2.1 knots
Very Hard	High Fender Damage Expected	~75 foot–kips+	3.6 knots

WIND LOAD

110 mph, 3 second gust, Exposure C, unless otherwise noted, Occupancy Category II Structure per IBC–12/ASCE 7–10.

TIDES

Elevation datum for this project is 0.00 ft, Mean Lower Low Water (MLLW). Tidal Data Plane – Allyn, Case Inlet, Mason County (from Washington Department of Ecology).

Highest Recorded Tide: Estimated (EHW): 17.50 ft  
Mean Higher High Water (MHHW): 14.10 ft  
Mean High Water (MHW): 13.20 ft  
Mean Tide Level (MTL): 8.10 ft  
Mean Sea Level (MSL, 1952): 7.58 ft  
Mean Low Water (MLW): 3.00 ft  
Mean Lower Low Water (MLLW): 0.00 ft  
Lowest Recorded Tide: Estimated (ELW): –4.50 ft

CATHODIC PROTECTION

Cathodic protection provided by galvanizing of the steel components. After 10 years, structures should be inspected for corrosion and anodes added, as necessary.

MATERIALS AND CONSTRUCTION

PILES

Pipe material for fender piles and backing piles shall be ASTM A252, Grade 3, with minimum yield strength of 52 ksi. Chemistry of steel shall have a C.E. less than 0.45 per AWS.

STRUCTURAL STEEL

All miscellaneous steel plates and other shapes shall conform to ASTM A572, Grade 50, unless otherwise noted. Rectangular and round HSS shapes shall conform to ASTM A500 Grade B.

HARDWARE

All carbon steel shackles shall be new, forged, quenched and tempered hardware, shall be hot dip galvanized and shall be provided in the sizes called out in the drawings. Verify fit–up and compatibility of components. The pins on all shackles shall be alloy steel and have nut and cotter pin. Open link mooring chain shall be carbon steel, galvanized chain, in the size called out in the drawings. All chain, shackles, and other connecting hardware shall be new and accompanied with proof load documentation, as applicable.

All connecting bolts for steel to steel shall be ASTM A325 or A449. All other bolts shall be ASTM A307 with heavy hex nuts or as otherwise noted. Cut washers shall be 3/16–inch plate minimum. All nuts, bolts, washers, etc. shall be galvanized.

Stainless steel components shall be type 316, marine grade.

HDPE SLEEVES

High density polyethylene (HDPE) pipe sleeves shall meet the requirements of ASTM F714 and have the following dimensions:  
Inside Diameter: Min. = 13 inch, Max. = 14–1/2inches  
Wall Thickness: Min. = 15/16 inch, Max. = 1–3/4 inches

Contractor shall verify that the sleeve meets the above criteria and that the sleeve fits freely over the fender pile prior to shipment to the project site. Sleeve shall not be forced onto the pile. Any sleeve that has to be forced shall be rejected and replaced with a suitable sleeve at no additional cost to the Owner.

CYLINDRICAL RUBBER ENERGY ABSORBERS

Cylindrical rubber energy absorbers shall be comprised of elastomeric cylindrical rubber fender units as detailed in the plans. The overall dimensions of the fender units shall be as detailed in the plans within the following tolerances:

- Outside diameter: +/- 1/4 inch
- Inside diameter: +/- 1/4 inch
- Length: + 0 inch, – 1/4 inch

All edges shall be cut and finished smooth and even, without rough edges. All holes shall be cleanly bored with appropriate equipment and methods to ensure no damage to the rubber, including tearing, delamination, burning or any other permanent deformation or scaring of the material.

The fender units shall be capable of absorbing the design energy with a reaction at the designed deflection stated below (per foot of length of each fender unit), within a tolerance of +/- 10 percent:

- Reaction: 12.5 kips per foot of length
- Energy Absorption: 4.0 kip–foot per foot of length
- Deflection: 50 percent (9 inches)

The rubber for the fenders shall be natural or synthetic rubber or a mixture. The fenders shall be reinforced with carbon black and resistant to aging, seawater, abrasion and ultraviolet rays. The rubber shall be homogenous in quality and free from foreign materials, bubbles, injury, cracks and other harmful defects. A certified test report, showing compliance with the rubber properties shown, must be provided to the Engineer before the fenders are delivered to the site.

The performance of the fender is to be expressed by the value of the energy absorbed at the maximum value of the reaction load generated when the fender is compressed to its rated or maximum deflection.

In the performance test of the fender, compression is to be applied toward the top face of the fender unit. The compression speed shall follow current PIANC Fender Performance Testing guidelines and shall be recorded during testing. The fender unit is to be cycled for three times up to the designed deflection. Let the fender stand at rest for at least one hour. Then, a fourth deflection cycle shall determine the fender performance. For the performance test of the fender, the room temperature at the time of the test shall be recorded. The fender units shall achieve a performance with +/- 10 percent of the stated nominal design performance.

Performance tests must be conducted on at least four of the fender units and witnessed by an accredited 3rd party testing agency. Certificates must be provided before the fenders arrive on the jobsite confirming that the tests were run according to PIANC, Procedure to Determine and Report the Performance of Marine Fenders. The certificates must also confirm that the results of the tests meet the energy and reaction requirements called out in these specifications.

The rubber fenders shall be packaged sufficiently to prevent damage during shipment. Packing and delivery procedure must be included in the submittal package.

Fender mounting plates and internal plate washers that will be in contact with the rubber fender unit shall have eased and rounded edges to avoid causing damage to the fender unit when in service.

WELDING

All field and shop welding shall conform to AWS D1.1 Structural Welding Code – Steel, current edition.

Deposited filler metal shall meet Charpy Impact requirements of 20 foot–pounds at –20 degrees F and have chemistry similar to the base metal as approved by the Owner. Filler metals shall only be used in welding positions recommended by the manufacturer. Welding consumables shall be stored and the condition maintained per AWS Section 5.

Welding personnel shall be qualified per WABO to weld procedures and weld positions necessary for the joint details specified. All onsite welding shall be completed by WABO certified welders. All steel fabrication shop drawings shall reference the weld procedure specifications for each weld detailed. Weld procedure specifications shall be submitted with the shop drawings. Submittals verifying welder qualifications must be transmitted to the Owner for approval prior to any welding.

No welding through coatings shall be performed. Coatings within 2 inches of the weld root shall be removed prior to welding and repaired as discussed in Coating Repair.

All welds shall be visually inspected to comply with the visual inspection criteria for statically loaded non–tubular and tubular connections per AWS Section 6. Welds are subject to non–destructive testing using VT, RT, MT and UT methods, per AWS Section 5, as appropriate. Welding inspection shall be provided by WABO certified third party inspector.

Acceptable criteria shall be for non–cyclic loading. Welds failing shall be repaired at the Contractor's expense, which will also include all costs for retesting, to achieve passing results.

Remove and repair all burrs and weld splatter after welding.

GALVANIZING

All structural steel, pile and hardware shall be galvanized per ASTM A123 or A153 after fabrication unless otherwise noted.

SPRAY METALIZING

Dolphin caps shall be spray metalized per the following specifications from the SSPC (Steel Structures Painting Council) – Steel Structures Painting Manual:

- SSPC CS–Guide No. 23 for Thermal Spray Metallic Coating
- SSPC–SP 12 for power washing, pre cleaning
- SSPC–SP 10/NACE No. 2 for blast cleaning, near white metal finish
- SSPA–PA 2 for coating thickness measurement
- SSPC–PA 1 for seal coating

Contractor shall submit a Quality Control Plan for preparation and application of metal coatings for all project components specified to be coated. Quality Control Plan shall address solvent cleaning, blasting, surface profile standards, stripe coat and primer coat application, finish coat applications, coating thickness measurement and documentation, adhesion pull test procedures, independent inspection and documentation, as well as handling and transport methods.

Prepare all surfaces to be spray metalized per SSPC CS–Guide 23, Current Edition. Surfaces to be spray metalized include dolphin caps. Prior to blast cleaning, surface imperfections such as sharp fins, sharp edges, weld spatter, etc. shall be removed from the surface. Blast clean the surfaces to be spray metalized to a near white metal finish in accordance with SSPC–SP 10/NACE No. 2. The steel substrate shall have a minimum angular profile depth of 2.5 mils.

Prior to application of the spray metalized coating, the steel substrate shall be heated to 250 degrees F to remove moisture from the steel. A minimum surface temperature shall be maintained during application of the spray metalized coating to prevent condensation of moisture on the substrate. Time between the completion of the final blasting and the completion of the thermal spraying should be no greater than six hours. If rust bloom, blistering or degraded coating appears at any time during the application of the coating system, repair the unsatisfactory portions per the specifications.

Following cleaning and preparation, spray metalize the dolphin caps with a pure zinc or 85% zinc/15% aluminum coating per the SSPC CS–Guide 23, Current Edition. The coating shall have a minimum dry film thickness of 12 mils. The coating thickness shall be measured per SSPC–PA 2 with the following modification: no single measurement, including those that create a spot measurement, shall be less than 70% of the minimum required dry film thickness. The specified coating thickness shall be applied in several crossing passes laying down approximately 3 to 4 mils for each pass. The deposited coating system shall be uniform without blisters, cracks, loose particles, or exposed steel as examined with 10x magnification. Thermal spraying in low temperature environments, less than 40 degrees F, shall comply with SSPC–CS 23 requirements

The Contractor shall perform a minimum of one portable tension–bond measurement on each dolphin cap. The Contractor shall also perform a bend test at the beginning of each work shift or crew change, consisting of:

- Use carbon steel coupons of approximate dimension 2 in. x 4 in. x 8 in. x 0.05 in. thick.
- Surface preparation according to the contract specifications.
- Bend coupons 180 degrees around a 0.5 in. diameter mandrel. Bend test passes if there is no cracking or only minor cracking with no spalling or lifting (by a knife blade) from the substrate. Bend test fails if the coating cracks with lifting (by a knife blade) from the substrate

Seal the spray metalized coating with Pro–Line 4800/4801 Prothane H.S. as manufactured by Sherwin Williams or approved equal. Sealant color shall be clear. The seal coat shall be applied to 2 to 3 mils dry film thickness per manufacturer's recommendations and in conformance with SSPC–PA 1. The sealer should be applied as soon as possible after thermal spraying and preferably within eight hours.

COATING REPAIR

Damaged galvanizing, including that removed for welding, shall be repaired by stick galvanizing with zinc sticks to a minimum thickness of 12 mils per ASTM A780, followed with a layer of zinc rich paint. Alternatively, spray metalizing, per the specifications, can be used for field coating repairs.

EPOXY ANCHORS

All epoxy anchors shall be Hilti HIT–HY 200 max adhesive and installed per manufacturer's recommendations, unless otherwise noted.

ISSUED FOR BID

HERRON ISLAND FERRY  
DOLPHIN REPLACEMENT

GENERAL NOTES

DESIGNED BY: JDO PROJECT NO: 154034.02 SHEET NO:  
DRAWN BY: GRD DATE: DECEMBER 2016  
CHECKED BY: TWB SCALE: NOTED

16 OF 17



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GENERAL NOTES (cont.)

PILE INSTALLATION REQUIREMENTS

GENERAL

A vibratory hammer shall be used to install all piles to full length specified. Dolphin vertical and back batter bearing piles shall be proof driven with an impact hammer. Vertical bearing pile shall be impact driven the final 5 feet, minimum. The Contractor shall submit a plan for pile driving, including hammer type, driving method, proposed templates and support equipment, etc. All pile driving methods shall meet the requirements of the permits issued for this project.

TOLERANCES

The fender piles shall be driven within 1 percent of plumb vertical alignment (1/2 inch over 4 feet) and within 1 inch of final horizontal position at cutoff. The dolphin vertical bearing piles shall be driven within 2 percent of plumb vertical alignment (1 inch over 4 feet) and within the 2 inches of final horizontal position at cutoff. Dolphin batter piles shall be driven within 2 percent of specified batter angle alignment (23 to 25 inches over 4 feet for 2:1 batter piles and 15 to 17 inches over 4 feet for 3:1 batter piles) and within 2 inches of final horizontal position at cutoff.

Piles hitting obstacles and misaligned piles outside specified tolerances shall be pulled by the Contractor with a vibratory hammer and redriven at no additional cost to the Owner. Contractor is responsible for conducting a dive inspection in the work area to confirm area is clear for new pile driving. Document any potential conflicts to pile driving and contact Engineer immediately with report.

PILE DRIVING

All piles shall be driven with a vibratory and/or impact hammer adequately sized and configured as needed to obtain the required embedment to the estimated tip elevations and capacities shown in the plans, without damage to the pile. It is anticipated that at a minimum, an APE 200, APE 150T, or equivalent vibratory hammer, similar to that used for the test pile program, will be used. Production piles shall reach, at a minimum, the probe depths achieved in the Test Pile Probing program and achieve the specified bearing and tension capacities based on Engineer's evaluation of driving characteristics. If selected vibratory hammer is unable to reach the probe depths and capacities, substitution with more suitable equipment shall be made, at the Contractor's expense.

Dolphin vertical and back batter bearing piles shall be driven with both vibratory hammer and impact hammer as required to reach design embedment and capacity. Dolphin vertical piles include a SPIN FIN™ pile tip which is anticipated to increase driving resistance by approximately 50 percent, compared to smooth piles. Contractor shall account for this anticipated increase in driving resistance when selecting pile driving equipment. Additionally, piles equipped with a SPIN FIN pile tip will rotate counterclockwise (when viewed from above) while advancing. It is anticipated that pile may rotate up to one full rotation in 30 feet of driving.

It is anticipated that an impact hammer with a minimum ram weight of approximately 4,000 pounds and rated energy capable of delivering approximately 27,000 foot-pounds (DELMAG D19-32 or equal) will be required. However, Contractor shall evaluate if larger piece of equipment will be necessary to achieve embedment and capacities specified in the plans.

Dolphin vertical and back batter bearing piles shall be impact driven. Vertical bearing piles shall be impact driven the final 5 feet, minimum, as required to confirm bearing and tension capacities.

All pile driving shall be conducted in the presence of the Owner's Representative. The Contractor shall assist in monitoring the pile driving and shall mark each pile in one-foot increments with every 5th foot increment numbered. Pile marks shall be visible from all sides during driving. All pile cutoffs shall become property of the Contractor and shall be removed from the site. Minimum cutoff of one-foot required to allow for final grades and assembly, installation and welding of caps.

REQUIRED CAPACITIES

In addition to driving to the estimated tip elevations shown in the plans, all piles shall be driven to refusal with full weight of vibratory hammer applied and hammer running at full power. Refusal is considered when pile advancement slows to zero for a period of at least 30 seconds. Piles failing to reach referenced local probe depth elevation prior to refusal may require additional effort. Fender piles driving full length, but not reaching defined refusal shall be subjected to the following capacity criteria:

Fender piles shall have adequate bearing capacity to support the weight of the stationary vibratory hammer (approximately 10,000 pounds), held for one minute without visible settlement. Contractor shall demonstrate adequate bearing capacity of each fender pile, if refusal is not reached. If fender pile settles under stationary weight of vibratory hammer, pile will be allowed to set-up for 24 hours and retested. If settlement continues after set-up period, 20 foot section of pipe shall be spliced, per the plans and specifications, and driving continued.

Dolphin vertical and back batter bearing piles shall be driven with vibratory and impact hammer to required embedment and bearing capacity as described in the pile schedule in the plans. If specified bearing capacity is not achieved prior to driving full length of pile, an additional section of pipe (20 foot minimum) shall be spliced and driving continued until capacity is demonstrated.

Dolphin bearing piles shall be driven to refusal as defined in these notes. Dolphin bearing piles may require additional proofing with an impact hammer if refusal is not reached prior to driving full length of pile specified. Data collected from impact driving the specified bearing pile will be used to estimate the bearing capacity of the other dolphin piles, where impact hammer is not used. If required bearing capacity cannot be confirmed, or full length of pile is driven without reaching specified capacity, an additional section of pipe (20 foot minimum) shall be spliced and driving continued until capacity is demonstrated.

SPECIAL INSPECTION AND STRUCTURAL OBSERVATION REQUIREMENTS 2015 IBC			
IBC SECTION	RDP	SO#	IBC SECTION TITLE
1705.2.1	SE	1	STRUCTURAL STEEL
1705.7	SE	1	DRIVEN DEEP FOUNDATIONS
SAI 1 TO BE DETERMINED BY CONTRACTOR.			

ISSUED FOR BID

HERRON ISLAND FERRY  
DOLPHIN REPLACEMENT

GENERAL NOTES

DESIGNED BY:	JDO	PROJECT NO:	154034.02	SHEET NO:	
DRAWN BY:	GRD	DATE:	DECEMBER 2016		
CHECKED BY:	TWB	SCALE:	NOTED		



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REVISIONS		
2	2/9/17	ADDENDUM No.2
REV	DATE	DESCRIPTION

**Herron Island Ferry Dolphin Replacement  
Planholders List**

Feb 9, 2017

<b>Company</b>	<b>Contact</b>	<b>Phone</b>	<b>Email</b>
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Orion Marine Group	Carmelo Ramos	253-552-1140	<a href="mailto:cramos@orionmarinegroup.com">cramos@orionmarinegroup.com</a>
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Triton Marine Construction	Chris Nordlund	360-373-7090	<a href="mailto:cnordlund@triton-marine.com">cnordlund@triton-marine.com</a>
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Bid Ocean, Inc.		302-450-1923	<a href="mailto:bids@napc.me">bids@napc.me</a>
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Builders Exchange of Washington	Jamie Johnson	425-258-1303	<a href="mailto:reception@bxwa.com">reception@bxwa.com</a>