

FISHERIES AND OCEANS CANADA

CANADIAN COAST GUARD

PACIFIC REGION

James Island, Beacon Construction and Removal

Marine Construction

June 2013

1.1 SITE

- .1 The work is located at the following site:
 - .1 LL 227 James Island located at Latitude 48° 37' 02.9" N and Longitude 123° 22' 47.1" W (NAD 83)

1.2 GENERAL DESCRIPTION

- .1 At LL 227 James Island supply and install a new three pile steel dolphin c/w shear plates and c-channel bracing; Install aluminum platform and steel tabs, galvanized ladder and brackets, aluminum daymarks, and anodes supplied by CCG; Remove and dispose existing five pile creosote treated timber dolphin, timber platform, and chain ladder; Remove and salvage existing navigation light, solar panel, and battery box for return to CCG.
- .2 Contractor to provide the CCG with Lat/Long (Nad 1983) and deck elevations relative to chart datum of the newly installed structure at LL 227 James Island. Survey to be carried out by a certified marine surveyor and meet the attached "Standards and Specifications, Surveys of CCG fixed Aids to Navigation".
- .3 All items salvaged by contractor and other recovered materials indicated on the drawings are to be stored by the Contractor at a secure location until collected by the CCG.
- .4 CCG to deliver all CCG supplied materials indicated on the drawing(s) to a location to be arranged with the contractor.

1.3 SITE CONDITIONS

- .1 Prospective bidders are expected to familiarize themselves with site and soil conditions prior to the submission of their tender.
- .2 Contractor will measure and verify pile lengths prior to ordering materials
- .3 Contractor will measure and verify water levels prior submission of their tenders

1.4 DATUM

- .1 Water level and ground elevation shown on Drawing No. 20821 are approximate levels and are referenced to Chart datum.

1.5 LAYOUT OF WORK

- .1 Subject to Subclause 1.5.2, layout the work onsite to the departmental representatives satisfaction. Contractor will survey in the locations of the new structure and provide the departmental representative with the coordinates (NAD 83) and deck elevations (Chart datum). Survey to be carried out by a certified marine surveyor and meet the attached "Standards and Specifications, Surveys of CCG fixed Aids to Navigation".
- .2 The Departmental representative may set stakes and establish bench marks to indicate the location, alignment, and reference elevations for the work.
- .3 Execute work in accordance with any instructions given by the Departmental representative pursuant to Subclause 1.5.2.

1.6 SCHEDULE OF WORK

- .1 Provide a schedule of work within five (5) days of award of contract and **complete work before Sept 30, 2013.**
- .2 Whenever variation from the schedule occurs or is expected to occur, notify the Departmental representative of the change.

1.7 DELAYS

- .1 Delays, other than those caused by changes requested by the Departmental representative, which occur will not affect the Tender Prices Per Unit. Claims for such delays will not be entertained by the Department.

1.8 ASSISTANCE BY CONTRACTOR

- .1 Co-operate with the Departmental representative and/or his representative on inspection of work and provide transportation and assistance requested for all shifts worked.
- .2 On request of the Departmental representative or his representative furnish for their use such boats, equipment, labour, and materials that would ordinarily form part of the plant as is necessary to inspect and supervise the work at all times.

1.9 CONTRACTOR'S USE OF SITE

- .1 As much as is practicable, regulate construction activities to provide safe access to traffic at all times.

1.10 MOBILIZATION AND DEMOBILIZATION

- .1 Mobilization and demobilization will include all work required to supply materials, plant, and labour to the site of the work unless specified otherwise.

1.11 PLANT MOVES

- .1 Plant moves will include all work required to move material, plant, and labour from one site of the works to another during the duration of the Contract.

1.12 INTERFERENCE TO NAVIGATION

- .1 The Contractor shall be familiar with vessel movements and fishery activities in areas affected by the work. The Contractor shall plan and execute the work in a manner that will not impede navigation or interfere with fishing operations.
- .2 Claims for loss of production, delays or other expenses resulting from interference with moored or movement of vessels or fishing activities will not be entertained by the Department.
- .3 Comply with all Canadian Coast Guard regulations in conjunction with navigation aids which may be considered necessary during the course of the project.

1.13 NOTIFICATIONS

- .1 The Contractor will also notify the local Fisheries Officer not less than five (5) days prior to commencement and completion of operations.
- .2 Keep Vessel Traffic Services, Canadian Coast Guard informed of operations in order that necessary notices to shipping will be issued. For notices to shipping, contact:

Canadian Coast Guard
Regional Marine Information Centre, Pacific
Suite 2380, P.O. Box 12107
555 West Hastings Street
Vancouver, B.C. V6B 4N6
Tel: (604) 666 - 6011
Fax: (604) 666 - 8453

1.14 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Ensure work meets all applicable environmental regulations and standards.
- .2 The Contractor shall comply with municipal, provincial, and national regulatory agency regulations relating to the project.
- .3 Claims for extra costs resulting from all regulatory agency requirements including those referenced in Clause 1.14.2 will not be entertained by the Department.
- .4 The Contractor shall mark floating equipment with lights in accordance with Notice to Mariners CCG regulations.
- .5 The Contractor will ensure that a fuel/oil spill emergency action plan is in place at all times.
- .6 The contractor shall comply with the "BC Marine and Pile Driving Contractors Association, Best Management Practices for Pile Driving and Related Operations"
- .7 The mitigative measures outlined in the attached "Standard Mitigation Organized by Project Activity" will form part of the specification. The Contractor will keep a copy of the report on site and be ready to display if requested by regulator or inspector.

1.15 DRAWINGS

- .1 Additional drawings: the Departmental representative may furnish additional drawings to assist proper execution of work. These drawings will be issued for clarification only. Such drawings shall have the same meaning and intent as if they were included with the plans and referred to in the Contract documents.
- .2 Scale measurements taken from scaled drawings shall not apply for purposes of interpretation. The Contractor shall take his own measurements before presenting his tender.
- .3 Records:
 - .1 Two (2) complete sets of drawings and specifications shall be kept on the plant in the possession of the Contractor during the Contract period.
 - .2 As the work progresses, the Contractor shall keep an accurate list of all changes made in the work and show such changes clearly on two (2) sets of plans to be returned to the Departmental representative at the completion of the work.

1.16 HAZARDOUS MATERIALS

- .1 Comply with federal and provincial legislation pursuant to the storage, handling, and use of controlled products.

1.17 CODES AND STANDARDS

- .1 All work shall meet or exceed the requirements of the latest edition of the standards of the Canadian Government Specification Board (CGSB), Canadian Standards Association (CSA), National Building Code of Canada (NBCC), Worksafe B.C., Canada Labor Code, American Society of Testing and Materials (ASTM), and other standards referred to in the tender documents.
- .2 The requirements of the standards referenced to in the drawings and the specifications shall not be violated on the pretext that the provincial and local regulations are less stringent. Where conflict arises in the course of work, the strictest standards shall apply.

1.18 PERMITS, CERTIFICATES, AND FEES

- .1 The Contractor shall give all notices, obtain and pay all fees and permits, and all other services required or requested by the authorities having local jurisdiction.
- .2 The Contractor shall be responsible for all damages and costs which result from the Contractor's failure to pay the fees and procure the permits referred to herein.
- .3 The Contractor shall pay all accounts produced by the federal, provincial, and municipal authorities and relating to the present project.

1.19 INSPECTION AND TESTING OF MATERIALS

- .1 Inspection and testing will be arranged by Canadian Coast Guard unless otherwise specified. The cost of these services will be borne by Canadian Coast Guard, except as otherwise indicated.
- .2 If defects are revealed during inspection and/or testing, the Departmental representative will request additional inspection and/or testing to ascertain the full degree of defect. The Contractor shall pay the costs for re-testing and re-inspection.
- .3 Satisfactory inspection at any stage does not preclude future rejection if materials and workmanship subsequently are found to lack uniformity or fail to conform to the requirements specified. Acceptance will not be made until the materials are satisfactorily installed in the completed structure as specified.

1.20 EXISTING SERVICES

- .1 Exercise care when driving/drilling piles to ensure that any existing buried utilities are not disturbed.
- .2 Prior to driving or drilling piles, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.
- .3 Where unknown services are encountered, immediately advise the Departmental representative and confirm findings in writing.

1.21 MEASUREMENT FOR PAYMENT

.1 General:

- .1 Payment for work will be laid out in the Prices Per Unit as tendered for the classification of the work appearing in the "Unit Price Table" of the Form of Tender.
- .2 Any work called for in the specifications or shown on the plans, or which is necessary for the completion of the work called for in the specifications and is not specifically listed as a separate item in the "Unit Price Table", shall be deemed incidental to the general purpose of the Contract and no separate payment will be made on account of any such work, but the cost of any such incidental work shall be included in the Price Per Unit values as tendered for the various items appearing in the "Unit Price Table".

.2 Mobilization, Demobilization, Site Preparation, Disposal, and General Conditions - Pay Item #1:

- .1 The unit of measurement will be a single fixed item. This item will include all costs associated with mobilizations and demobilizations, removal of debris, the General Conditions, requirements and instructions of the Contract, and preparing the site for the work and cleaning up after completion.
- .2 Mobilization and demobilization required to move the plant, material, and labour within each work area is not a pay item.
- .3 Costs associated with the survey of new structure location in Lat/Long (NAD 1983) and deck elevations relative to chart datum provided to CCG will be included in this pay item.

.3 Supplying Steel Piles at LL 227 James Island - Pay Item #2:

- .1 The unit of measurement will be each linear meter of steel pile supplied and remaining an integral part of the completed work as specified and accepted by the Departmental representative. Measurement of each pile will be taken as the length from cut-off to ground line plus actual penetration into the ground. If, due to the nature of the ground, it is not possible to obtain the full penetration specified without damaging the pile, measurement will include that portion of cut-off representing the difference between specified and actual penetration.
- .2 No penetration in excess of the penetration specified for any pile will be included unless the Departmental representative is satisfied that such penetration is necessary and has so notified the Contractor in writing.
- .3 The Contractor shall make allowance in his pile lengths to obtain the penetration specified and to allow the pile to be cut-off at a sound section of the pile below any damage from driving. No portion of this cut-off will be included in the amount measured.

- .4 Drive 324mm diameter Steel Pile at LL 227 James Island - Pay Item #3:**
 - .1 The unit of measurement will be for each new 324mm diameter steel pipe pile driven, secured, and remaining an integral part of the completed work as specified.
 - .2 The supply and installation of the steel pile cap will be included in this pay item.

- .5 Installation of Aluminum Platform, Ladder, Shear Plates, Anodes and Accessories at LL 227 James Island - Pay Item #4:**
 - .1 The unit of measurement will be for the installation of the CCG supplied aluminum platform and galvanized ladder and remaining an integral part of the completed work as specified.
 - .2 The installation of all the CCG supplied tabs to secure the platform, ladder, and railing will be included in this item.
 - .3 The installation of the CCG supplied anodes will be included in this pay item.
 - .4 The installation of the shear plates and c-channel bracing supplied by the contractor will be included in this pay item.
 - .5 The installation of the CCG supplied anodes will be included in this pay item.

- .6 Removal of existing creosote wooden pile dolphin at LL 227 James Island - Pay Item #5:**
 - .1 The unit of measurement will be for the removal and disposal of the existing 5-pile creosote treated timber dolphin, timber platform and ladder.
 - .2 The salvage of the existing navigation light, solar panel, and battery box will be included in this pay item.

Part 2 - Products

2.1 GENERAL

- .1 Except as otherwise noted, only new materials will be used in and remain an integral part of this structure.
- .2 The Departmental representative may inspect materials and products (excluding Owner-supplied materials) at his discretion at all stages of their manufacture, transportation and assembly. Satisfactory inspection at any stage does not preclude future rejection if the materials or products are subsequently found to lack uniformity or fail to conform to the requirements specified. Acceptance will not be made until the materials or products are satisfactorily installed in the completed structure as specified.

2.2 STEEL PIPE PILES

- .1 324 mm diameter steel pipe pile: to ASTM A252 Grade 3, seamless or welded straight longitudinal seam, of size and wall thickness indicated on the drawings.
- .2 Material for 324 mm diameter piles do not have to be galvanized. Pipe piles to have the following minimum properties:
 - .1 Yield strength: 280 MPa.
 - .2 Pile thickness: 13 mm
 - .3 Splices: to CAN/CSA-G40.21.
 - .4 Steel pile caps: to CAN/CSA-G40.21, Grade 300 W.
 - .5 Welding electrodes: to CSA W48 series.
- .3 Contractor to provide CCG Departmental representative with Mill Certificate of steel pipe piles.

2.3 METAL FABRICATION

- .1 Materials:**
 - .1 Steel sections and plates: to CAN3-G40.21-M81, Grade 300W.
 - .2 Welding materials: to CSA W59-1984.
 - .3 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CSA G164.
- .2 Drift bolts, washers and miscellaneous iron will conform to the standard for General Purpose Structural Steel of the CAN3-G40.21.
- .3 Items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties are not acceptable.

Part 3 - Execution

3.1 PILE DRIVING EQUIPMENT

- .1 Prior to commencement of pile installation operation, submit to the Departmental representative for approval, details of equipment for installation of piles.
 - .1 Impact hammers: give manufacturer's name, type, rated energy per blow at normal working rate, mass of striking parts of hammer, mass of driving cap and type and elastic properties of hammer and pile cushions.
 - .2 Non-impact methods of installation such as augering, jacking, vibratory hammers or other means: give full details of characteristics necessary to evaluate performance.
- .2 Hammer:
 - .1 Hammers to be capable of developing a blow at operating speed with an energy of 47,425 joules (35,000 foot-pounds) per blow. Hammer is to be capable of being adjusted to deliver reduced impact. When required penetration is not obtained by use of hammers complying with minimum requirements, use larger hammer approved by the Departmental representative. For air/steam and double-acting diesel hammers, provide independent calibrated pressure gauges on hammer side of all valves. Provide calibration certificate dated within six (6) months of calibration.
 - .2 Weight of hammer to be a minimum of 1000 kg and maximum of 3000 kg.
- .3 Leads:
 - .1 Construct pile driver leads to provide free movement of hammer. Hold leads in position at top and bottom, with guys, stiff braces, or other means approved by the Departmental representative to ensure support to pile while being driven.
 - .2 Length: except for piles driven through water, provide length of leads so that use of a follower is unnecessary.
- .3 Swing leads:
 - .1 Requires written approval from the Departmental representative. Firmly guy top and bottom to hold pile in position during driving operation. Method to be approved by the Departmental representative.
- .4 Followers:
 - .1 When permitted, provide followers of such size, shape, length and mass to permit driving pile in desired location to required depth and resistance. Provide followers with socket or hood carefully fitted to top of pile to minimize loss of energy and prevent damage to pile.
 - .2 Where followers are used, drive applicable load test piles using similar follower.

3.2 PILE INSTALLATION

- .1 DRIVING:
 - .1 Piles will be driven in such a manner as to avoid damage to piles. Sufficient allowance will be made so that, when driven to final position, piles may be cut off at a sound section of the piles. Piles damaged in driving are to be removed from the work and replaced with new piles.
 - .2 All piles will be driven at the angles and to the penetrations specified unless solid bearing is reached at a lesser depth and approved by the Departmental representative in writing. Piles will be cut off as specified.
 - .3 Ensure that ground conditions at pile locations are adequate to support pile driving operation. Make provision for access and support of piling equipment during performance of work.
 - .4 Use driving caps and cushions to protect piles.
 - .5 Hold piles securely and accurately in position while driving.
 - .6 Deliver hammer blows in direct axis of pile. Ensure pile is not over-stressed.
 - .7 Reinforce pile heads if necessary.
 - .8 Cut off piles neatly and squarely at elevations as indicated. Provide sufficient length above cut-off elevation so that the part damaged during driving is cut off.
 - .9 Remove cut-off lengths from site upon completion of work.
 - .10 Installation of each pile will be subject to approval of the Departmental representative. The departmental representative will be sole judge of the acceptability of each pile with respect to final driving resistance, depth of penetration, or other criteria used to determine lateral load capacity. The departmental representative is to approve final driving of all piles prior to removal of pile driving rig from site.
 - .11 Drive each pile to penetration as specified or to practical refusal as determined by the Departmental representative.
 - .12 Piles not to be more than 1° out of plumb or batter.
 - .13 Where an obstruction is encountered that causes sudden unexpected change in penetration resistance or deviation from specified tolerances, proceed as directed by the Departmental representative.
 - .14 Remove rejected pile and replace with a new, and if necessary, a longer pile.
 - .15 No extra compensation will be made for removing and replacing or other work made necessary through rejection of defective pile.

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- .2 **WELDING:**
- .1 All Contractors performing welding shall be certified to CSA W47.1 Division 3.
 - .2 Weld quality and workmanship shall be to CSA W59 Section 12.
 - .3 Contractor shall provide CWB Approved Welding Procedure Datasheets for the work.
 - .4 All pile splices shall be full penetration complete penetration (CP) onto backing.
 - .5 All pipe and backing materials shall have mill certificates.
 - .6 All pipe materials shall be weldable with carbon equivalent (CE) to 0.45% mix.
 - .7 High strength pipe materials shall be verified for use.
- .3 **FIELD MEASUREMENTS:**
- .1 Assist the Departmental representative to maintain accurate records of driving for each pile, including:
 - .1 Type and make of hammer, stroke, weight or related energy.
 - .2 Other driving equipment including water jet, driving cap, cushion.
 - .3 Pile size and length, location of pile in pile group, location or designation of pile group.
 - .4 Sequence of driving piles in group.
 - .5 Number of blows per meter for entire length of pile and number of blows per 25 mm for the last 300 mm.
 - .6 Final tip and cut-off elevations.
 - .7 Other pertinent information such as interruption of continuous driving, pile damage.
 - .8 Record elevations taken on adjacent piles during driving of each pile.
 - .9 Measure rate of penetration if vibratory methods are used for pile installation.

3.3 RESTORATION

- .1 Any portion of the existing structure or other facilities at the site damaged due to construction activities will be restored to new condition at the Contractor's expense.

3.4 MATERIAL DISPOSAL

- .1 Material designated to be removed will become the property of the Contractor and is to be disposed of in an environmentally acceptable manner so that it becomes neither a menace to marine navigation nor a nuisance to the public on any property.
- .2 Unless otherwise specified, all existing material to be replaced or renewed will be disposed of in accordance with Clause 3.5.1 above.

END OF SECTION