



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

## INVITATION TO TENDER

**Sealed Tenders, addressed to:**

Fisheries and Oceans, Canada  
TENDER SUBMISSION  
c/o Natural Resources Canada  
1350 Regent Street  
Fredericton NB E3C 2G6

**and marked:           Tender F5211-130175  
                                  Motor Control Center Replacement**

**will be received up to:       FRIDAY, 13 SEPTEMBER 2013**  
  2:00 p.m. Atlantic time (11:00 a.m. Pacific),

**Nature of Work:**

The existing motor control center set in the Puntledge River Hatchery, Pump Building, is reaching the end of its lifecycle and repair parts are not available. For cost effectiveness, Fisheries and Oceans Canada (DFO) will be contracting to replace the unit with a modern equivalent with additional capabilities including integrated transfer switch.

The upgrade electrical work includes the fabrication, supply, and installation of the motor control center. Electrical connection of a diesel generator is included. Site start up, commissioning, training, operations manuals/documentation and warranty are also included.

Supply and physical installation of the diesel generator are not part of the scope of the work.

**Bidders are instructed to consult the appended tender package for further details and specific requirements.**

This contract will include all labour, materials, and equipment be supplied by the contractor as listed in the tender package.

**Site Locations: Puntledge River Hatchery, 38 Powerhouse Road, Courtenay, BC.**

**Start Date:** Upon Award. The physical works must be installed between December 10, 2013 and January 10, 2014

**Completion Date:** All work to be completed by 10 January 2014

**Mandatory Site Visit:** is to be held on September 5<sup>th</sup>, 2013 at 10:00am local time at the Puntledge River Hatchery, 38 Powerhouse Road, Courtenay, BC. The MCC upgrade project is located at the adjacent BC Hydro Generation facility. It is a requirement for all persons wishing to tender on this project to attend this meeting at the site to familiarize themselves fully with the scope of work and the tendering requirements.

**Inquiries:** Direct all technical and contractual inquiries to the contracting authority Kimberly Walker by email at [Kimberly.walker@dfo-mpo.gc.ca](mailto:Kimberly.walker@dfo-mpo.gc.ca).

Fisheries and Oceans Canada will not necessarily accept the lowest or any of the tenders received and reserves the right to reject any and all tenders received which shall be final and at the sole discretion of the Department.

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## APPEL D'OFFRES

**Faire parvenir les soumissions cachetées à :**

Pêches et Océans Canada  
SOUMISSION CONSÉCUTIVE À UN APPEL D'OFFRES  
a/s de Ressources naturelles Canada  
1350, rue Regent  
Fredericton (N.-B.) E3C 2G6

**et indiquer :      Soumission F5211-130175  
                          Remplacement d'un centre de commande des moteurs**

**Les soumissions seront acceptées jusqu'à : VENDREDI 13 SEPTEMBRE 2013**  
14 h, heure de l'Atlantique (11 h, heure du Pacifique)

**Nature des travaux :**

Le centre de commande des moteurs du bâtiment de la pompe à l'Écloserie de la rivière Puntledge approche la fin de son cycle de vie, et il est impossible d'obtenir des pièces de rechange. Pour des raisons de rentabilité, Pêches et Océans Canada (MPO) attribuera un contrat pour le remplacement de l'unité par un équivalent plus moderne ayant des capacités supplémentaires, notamment un commutateur de transfert intégré.

Les travaux de mise à niveau électrique comprennent la fabrication, la fourniture et l'installation du centre de commande des moteurs. Le raccordement électrique d'un groupe électrogène diesel est inclus. Le contrat comprend également le démarrage sur le site, la mise en service, la formation, les manuels/documents sur le fonctionnement et la garantie.

La fourniture et l'installation physique du groupe électrogène diesel ne font pas partie de la portée des travaux.

**On rappelle aux soumissionnaires de consulter le dossier d'appel d'offres pour obtenir de plus amples renseignements et les exigences particulières.**

Ce marché comprendra la main-d'œuvre, le matériel et l'équipement fournis par l'entrepreneur, selon la description dans le dossier d'appel d'offres.

**Emplacement du site : Écloserie de la rivière Puntledge (Puntledge River Hatchery),  
38 Powerhouse Road, Courtenay (Colombie-Britannique)**

**Date de début :** Dès l'attribution. Les éléments physiques doivent être installés entre le 10 décembre 2013 et le 10 janvier 2014.

**Date d'achèvement :** Tous les travaux doivent se terminer d'ici le 10 janvier 2014.

**Visite obligatoire du site :** Elle aura lieu le 5 septembre 2013 à 10 h, heure locale, à l'Écloserie de la rivière Puntledge, au 38 Powerhouse Road, à Courtenay (Colombie-Britannique). Le projet de mise à niveau du centre de commande des moteurs se déroulera dans une installation de génération d'électricité de BC Hydro qui est adjacente au site. Cette réunion sur le site est obligatoire pour toutes les personnes qui souhaitent présenter une soumission afin qu'elles se familiarisent entièrement avec la portée du travail et les exigences de la soumission.

**Demandes :** Toutes les demandes de nature techniques et contractuelles doivent être transmises par courriel à l'autorité contractante Kimberly Walker à l'adresse : [Kimberly.walker@dfo-mpo.gc.ca](mailto:Kimberly.walker@dfo-mpo.gc.ca).

Pêches et Océans Canada n'acceptera pas nécessairement la soumission la moins coûteuse ou l'une des soumissions reçues, et il se réserve le droit de refuser une ou l'ensemble des soumissions reçues, cette décision étant sans appel et à la seule discrétion du Ministère.

**Canada**



Fisheries and Oceans  
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August 29, 2013

CONTRACT SERVICES  
Fisheries and Oceans Canada  
C/O Natural Resources Canada  
1350 Regent St  
Fredericton, NB E3C 2G6

**Re: Invitation to Tender F5211-130175  
Motor Control Center Replacement**

**Sealed, signed tenders will be received up to 2:00 p.m. Atlantic (11:00 a.m. Pacific): Friday, September 13<sup>th</sup>**, for the said service in accordance with the documents enclosed.

Bids shall be submitted and addressed as per sample below. It must include:

**two (2) signed** copies of the Form of Tender;

Do not address the bid to any individual, it may delay the receipt of the tender submission and could be considered late and therefore non-compliant. Make sure any outside envelope (i.e. courier envelopes) are addressed as per the sample below.

The onus is on the bidder to ensure that the bid is delivered on time to the location designated

Upon acceptance the successful bidder will be required to supply:

proof of insurance;  
proof of WCB coverage;

Any tender received after the above noted time will be considered late and will be returned to the sender unopened. Any tender submitted by email, telegram or facsimile will not be considered. Tenders may be revised by letter or fax (506) 452-3676, provided the tender and revision(s) are both received prior to Tender Closing Time.

**Mandatory Site Visit:** is to be held on September 5<sup>th</sup>, 2013 at 10:00am local time at the Puntledge River Hatchery, 38 Powerhouse Road, Courtenay, BC. The MCC upgrade project is located at the adjacent BC Hydro Generation facility. It is a requirement for all persons wishing to tender on this project to attend this meeting at the site to familiarize themselves fully with the scope of work and the tendering requirements.

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and Oceans

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et Océans

For further project or contract information, please contact Kim Walker by email at [Kimberly.walker@dfo-mpo.gc.ca](mailto:Kimberly.walker@dfo-mpo.gc.ca).

Regards,

Kim Walker  
Contracts Officer  
Enclosures

## SAMPLE ENVELOPE

*Your company name and address*

Fisheries and Oceans Canada  
**TENDER SUBMISSION**

Fisheries and Oceans Canada  
Att: Kimberly Walker  
c/o Natural Resources Canada  
1350 Regent Street  
Fredericton NB  
E3B 5P7

**Tender**      **F5211-130175**  
**Motor Control Center Replacement**

**Date Due:**    **Friday, September 13<sup>th</sup>, 2013**  
2:00 PM Atlantic Time

*Please ensure the envelope is addressed to my attention and the tender number is also noted. By not do so, it may delay the receipt of the tender submission and could be considered late and non-compliant. Make sure any outside envelope (i.e. Courier envelopes) are addressed the same.*

**Canada**



### CONSTRUCTION TENDER FORM

Closing Date/Time	Friday, September 13, 2013 @ 2pm Atlantic time	Solicitation No. F5211-130175
Closing Location	Fisheries and Oceans Canada Att: Kimberly Walker c/o Natural Resources Canada, 1350 Regent Street, Fredericton, NB, E3B 5P7	
Fax No.		
Project Title	Puntledge River Hatchery Motor Control Center Replacement	
Project Location	Puntledge River Hatchery, 38 Powerhouse Road, Courtenay, BC	

#### 1. TENDER DOCUMENTS

- 1.1. Construction Tender Form - FP-5155E
- 1.2. DFO Instructions to Bidders - Construction at <http://www.dfo-mpo.gc.ca/contract-contrat/instructions-instructions-eng.htm>
- 1.3. DFO General Conditions - Construction at <http://www.dfo-mpo.gc.ca/contract-contrat/general-generale-eng.htm>
- 1.4. Labour Conditions at 1.1. [http://www.hrsdc.gc.ca/en/labour/employment\\_standards/contracts/conditions.shtml](http://www.hrsdc.gc.ca/en/labour/employment_standards/contracts/conditions.shtml)
- 1.5. Schedules of Wages Rates for Federal Construction Contracts.  
The appropriate Schedule of Wage rates for the contract are the ones for the location where the work will be performed.  
Please refer to: [http://www.hrsdc.gc.ca/en/labour/employment\\_standards/contracts/schedule/index.shtml](http://www.hrsdc.gc.ca/en/labour/employment_standards/contracts/schedule/index.shtml)
- 1.6. Insurance Conditions at <http://www.dfo-mpo.gc.ca/contract-contrat/insurance-assurances-eng.htm>
- 1.7. Insurer's Certificate of Insurance - FP-5140E at [http://www.dfo-mpo.gc.ca/forms-formulaires/FP\\_5140\\_E.pdf](http://www.dfo-mpo.gc.ca/forms-formulaires/FP_5140_E.pdf)
- 1.8. Plans and Specifications

2. We, having informed ourselves fully of the conditions relating to the work to be performed, having full knowledge of site conditions and having carefully examined the plans and specifications and all the terms and covenants of the Tender Documents, including any amendments (IT BEING UNDERSTOOD AND AGREED THAT FAILURE TO HAVE DONE SO WILL NOT RELIEVE US OF OUR OBLIGATION TO ENTER INTO A CONTRACT AND CARRY OUT THE WORK FOR THE CONSIDERATION SET OUT HEREAFTER) do tender and offer to perform the said work in strict accordance with the said documents and such further details, plans and instructions as may be supplied from time to time and to furnish to Her Majesty the Queen in Right of Canada, all materials, plant, machinery, tools, labour and things necessary for the construction or carrying out and proper completion of the said work for the sums stated in the Combined Price Schedule of this tender form.
3. We understand and agree that all applicable taxes, duties, permits and fees are our responsibility and are included in our Tendered Price. The exceptions to the foregoing are the Goods and Services Tax (GST) / the Harmonized Sales Tax (HST). GST / HST will be paid to the contractor by Fisheries and Oceans Canada in addition to any amounts due under the contract.
4. We certify that Bid Security, if required, in one of the forms outlined in GI09 of the "DFO Instruction to Bidders - Construction", accompanies this Tender.
5. It is understood and agreed that in the event of this Tender being accepted within 30 (thirty) calendar days of the date and time stated for closing of tenders and our failing or refusing to carry out the contract in accordance with the terms of our Tender, our bid security, if required by the tender, (i) if in the form of a certified cheque, bank draft, or bonds of, or bonds unconditionally guaranteed as to principal and interest by, the Government of Canada, or (ii) if in the form of a Bid Bond, shall be forfeited to Her Majesty the Queen in Right of Canada and the Bonding Company shall be liable in accordance with the terms of the Bond.



6. It is further understood and agreed that notwithstanding (i) the forfeiture of the certified cheque or bonds of (ii) the liability of the Bonding Company, Her Majesty shall be entitled to the payment of any additional amounts that may be required to meet the cost of all loss and damage suffered by Her Majesty by reason of our default in carrying out the contract.
7. We understand this project must be completed by \_\_\_\_\_. If our Tender is accepted, we agree to start work immediately upon notification of contract award and once all required insurances, permits, Letter of Good Standing and Clearance from applicable provincial compensation authority, etc., are in place. We will attend start-up meeting and will work vigorously and continuously to complete the project within this prescribed time.
8. Bidders shall take note that the performance of the Contractor during and upon completion of the work shall be evaluated by Her Majesty. The evaluation shall be based on the quality of workmanship; timeliness of completion of the work; project management, contract management and management of health and safety.

Should the Contractor's performance be considered unsatisfactory, the Contractor's bidding privileges for future work may be suspended.

The form Contractor Performance Evaluation Report Form (FP 5135E) at [http://www.dfo-mpo.gc.ca/forms-formulaires/FP\\_5135\\_E.pdf](http://www.dfo-mpo.gc.ca/forms-formulaires/FP_5135_E.pdf) will be used to record the performance.

9. By signing below we certify that we are authorized to sign this tender on behalf of the Corporation, Partnership, Joint Venture or Sole Proprietorship and bind the company to it.
10. We certify that we are in possession of all the tender documents listed in this tender form.
11. Special tender form inserts/additional instructions (For DFO use only)



Project No. F5211-130175  
Project Location Puntledge River Hatchery, 38 Powe



Fisheries and Oceans Canada  
Pêches et Océans Canada

12. We certify that our tender is inclusive of all obligations as required by the preceding pages of this tender form, without change.

Our Goods and Services Tax/Harmonized Sales Tax (GST/HST) Registration number is: \_\_\_\_\_

Please indicate type of business and check one of the following :

Corporation  Partnership  Sole Proprietorship  Joint Venture

_____	_____	_____
Tenderer Name (Print)	Title	Company Name
_____	_____	Address: _____
Tenderer Signature	Date	Fax: _____
Duly Authorized Representative*		Phone: _____
*As per Paragraph 10 of this Tender Form		Email: _____

IF APPLICABLE

\_\_\_\_\_

Witness Name (Print)

\_\_\_\_\_

Witness Signature

CORPORATE SEAL



13. COMBINED PRICE SCHEDULE

- The prices per unit shall govern in establishing the Total Extended Amount. Any arithmetical errors in this Appendix will be corrected by Her Majesty
- Her Majesty may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.

Tenderer Name \_\_\_\_\_

**LUMP SUM**

The Lump Sum Amount designates Work to which a Lump Sum Arrangement applies.

(a) Work included in the Lump Sum Amount represents all work not included in the unit price table.

LUMP SUM AMOUNT (LSA) Excluding GST/HST	
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Tenderer Name \_\_\_\_\_

**UNIT PRICE TABLE**

The Unit Price Table designates Work to which a Unit Price Arrangement applies.

- (a) Work included in each item is as described in the referenced specification section.
- (b) The Price per Unit shall not include any amounts for Work that is not included in that unit price item.

Item	Specification Reference	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit (PU) (GST/HST extra)	Extended Amount (EQ x PU) (GST/HST extra)
TOTAL EXTENDED AMOUNT (TEA) Excluding GST/HST						

**TOTAL BID AMOUNT**

TOTAL BID AMOUNT (LSA + TEA) Excluding GST/HST	
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## Labour Conditions Fair Wages and Hours of Labour

### Index

- 01 Interpretation
- 02 General Fair Wage Clause
- 03 Hours of Work
- 04 Labour Conditions to be Posted
- 05 The Contractor to Keep Records which are to be Kept Open for Inspection
- 06 Departmental Requirements before Payment made to Contractor
- 07 Authority to pay Wages in the Event of Default by the Contractor
- 08 Conditions of Subcontracting
- 09 Non-discrimination in Hiring and Employment of Labour

### 01 Interpretation

In these Conditions

- (a) "Act" means the Fair Wages and Hours of Labour Act;
- (b) "Regulations" means the Fair Wages and Hours of Labour Regulations made pursuant to the Act;
- (c) "contract" means the contract of which these Labour Conditions are part;
- (d) "contracting authority" means the department of Government or a crown corporation with whom the contract is made;
- (e) "contractor" means the person who has entered into the contract with the contracting authority;
- (f) "regional director" means the director of a regional office of the Department of Human Resources Development or the director's designated representative;
- (g) "inspector" has the meaning assigned to the term by Part III of the Canada Labour Code.
- (h) "Minister" means the Minister of Labour of Canada;
- (i) "persons" means those workers employed by the contractor, subcontractor or any other person doing or contracting to do the whole or any part of the work contemplated by the contract;

### 02 General Fair Wage Clause

- (a) All persons in the employ of the contractor, subcontractor, or any other person doing or contracting to do the whole or any part of the work contemplated by the contract, shall during the continuance of the work:
  - i) be paid fair wages that is, such wages as are generally accepted as current for competent workers in the district in which the work is being performed for the character or class of work in which such workers are respectively engaged; and

- ii) in all cases, be paid no less than the minimum hourly rate of pay established by the Labour Program of the Department of Human Resources Development in the Fair Wage Schedules which form a part of this contract as Appendix A to these Labour Conditions; and
  - iii) for contracts covering work performed in the province of Quebec, be paid at least the wage rates established by that province for the purposes of the Quebec "Construction Decree".
- (b) Where there is no wage rate in the schedules referred to in (a) for a particular character or class of work, the contractor shall pay wages for that character or class of work at a rate not less than the rate for an equivalent character or class of work.
  - (c) Where during the term of the contract, the contractor receives notice from the contracting authority of any change in wage rates, the contractor shall pay not less than the changed wage rate beginning on the first day after receipt, by the contractor, of the notice of the change in wage rates.

### **03 Hours of Work**

- (a) The hours of work in a day and in a week of persons employed in the execution of the contract, including the hours of work in excess of which a person shall be paid overtime at a rate at least equal to one and one half times the fair wage, are the hours of work for the province in which the work is being performed as set out from time to time in an Act of that province.
- (b) The daily or weekly hours of work referred to in paragraph (a) may be exceeded in accordance with the applicable provincial law.

### **04 Labour Conditions to be Posted**

For the information and the protection of all persons, the contractor agrees to post and keep posted, in a conspicuous place on the premises where work contemplated by the contract is being carried out or on premises occupied or used by persons engaged in carrying out such work, a copy of these Labour Conditions, and a copy of the applicable Fair Wage Schedules along with any subsequent changes.

### **05 The Contractor to Keep Records which are to be Kept Open for Inspection**

- (a) The contractor agrees to keep books and records showing the names, addresses, classifications of employment and work of all workers employed under the contract, the rate of wages to be paid, the wages paid and the daily hours worked by the workers.
- (b) The contractor also agrees that the contractor's books, records and premises will be open at all reasonable times for inspection by an inspector.
- (c) The contractor also agrees to furnish the inspector and the contracting authority, on request, with such further information as is required to ascertain that the requirements of the Act, the Regulations and the contract with respect to wages, hours of work and other labour conditions have been complied with.

### **06 Departmental Requirements before Payment made to Contractor**

- (a) The contractor agrees that the contractor will not be entitled to payment of any money otherwise payable under the contract until the contractor has filed with the contracting authority in support of a claim for payment a sworn statement:
  - (i) that the contractor has kept the books and records required by these Regulations,

- (ii) that there are no wages in arrears in respect of work performed under the contract, and
  - (iii) that to the contractor's knowledge, all the conditions in the contract required by the Act and the Regulations have been complied with.
- (b) The contractor also agrees that, where fair wages have not been paid by the contractor to persons employed under the contract, the contracting authority shall withhold from any money otherwise payable under the contract to the contractor the amount necessary to ensure that fair wages are paid to all employees until fair wages are paid.

## **07 Authority to pay Wages in the Event of Default by the Contractor**

- (a) The contractor agrees that where the contractor is in default of payment of fair wages to an employee, the contractor will pay the Minister the amount the contractor is in default.
- (b) The contractor agrees that where the contractor fails to comply with paragraph (a), the contracting authority will pay to the Receiver General, out of any money otherwise payable to the contractor, the amount for which the contractor is in default.

## **08 Conditions of Subcontracting**

The contractor and the subcontractor agree that in subcontracting any part of the work contemplated by the contract, they will place in the subcontract the conditions respecting fair wages, hours of work and other labour conditions set out in the contract and the requirements set out in Section 4. The contractor further agrees that the contractor will be responsible for carrying out these conditions in the event the subcontractor fails to carry them out.

## **09 Non-discrimination in Hiring and Employment of Labour**

The contractor agrees that in the hiring and employment of workers to perform any work under the contract, the contractor will not refuse to employ and will not discriminate in any manner against any person because

- (a) of that person's race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status;
- (b) of the race, national or ethnic origin, colour, religion, age, sex, sexual orientation, marital status, disability, conviction for which a pardon has been granted, or family status of any person having a relationship or association with that person, or
- (c) a complaint has been made or information has been given in respect of that person relating to an alleged failure by the contractor to comply with subparagraph (a) or (b).

The logo for the Government of Canada, featuring the word "Canada" in a stylized serif font with a small crown above the letter 'a'.





**CONTRACTOR'S LIST OF SUB-CONTRACTORS**

**LISTE DES SOUS-TRAITANTS DE L'ENTREPRENEUR**

Contractor's (Name & Address)

Entrepreneur (nom et adresse)

It is my/our intention to employ the following sub-contractors whom I/  
We believe, following investigation, to be reliable and competent for the  
performance of that part of the work indicated. All other work will be  
done by me/us.

J'ai (nous avons) l'intention de faire appel aux sous-traitants suivants  
qui, je crois (nous croyons) après avoir effectué une enquête, sont  
dignes de confiance et compétents pour l'exécution de cette portion des  
travaux qui est mentionnée. Tous les autres travaux seront exécuté par  
moi (par nous).

Description (of work - des travaux)	Names and Addresses of Sub-Contractors - Noms et adresses de sous-traitants





Fisheries and Oceans Canada  
Puntledge River Hatchery  
Motor Control Center Replacement

STATEMENT OF WORK  
F5211-130175

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**INDEX**

<u>No.</u>	<u>Clause</u>	<u>Page</u>
<b>PART 1</b>	<b>GENERAL .....</b>	<b>1</b>
1.1	Background.....	1
1.2	Location.....	1
1.3	Inquiries .....	1
1.4	Scope of Work.....	1
1.5	Commencement and Completion .....	1
1.6	Work by Others .....	2
1.7	Contractor Use of Premises .....	2
1.8	Special Requirements .....	2
1.9	Drawings.....	3
2.0	Site Inspection .....	3
2.1	Submission of MCC Layout.....	3
2.2	Measurement and Payment .....	3

**Fisheries and Oceans Canada  
Puntledge River Hatchery  
Motor Control Center Replacement**

**STATEMENT OF WORK  
F5211-130175**

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## **PART 1 GENERAL**

### **1.1 BACKGROUND**

- .1 The existing motor control center set in the Puntledge River Hatchery, Pump Building, is reaching the end of its lifecycle and repair parts are not available. For cost effectiveness, Fisheries and Oceans Canada (DFO) will be contracting to replace the unit with a modern equivalent with additional capabilities including integrated transfer switch.
- .2 The upgrade electrical work includes the fabrication, supply, and installation of the motor control center. Electrical connection of a diesel generator is included. Site start up, commissioning, training, operations manuals/documentation and warranty are also included.
- .3 Supply and physical installation of the diesel generator are not part of the scope of the work.

### **1.2 LOCATION**

- .1 The Puntledge River Hatchery is located at 38 Powerhouse Road, in Courtenay B.C. The MCC upgrade project is located at the adjacent BC Hydro Generation facility.

### **1.3 INQUIRIES**

- .1 For questions concerning this requirement, please contact Kimberly Walker, Contracting Officer.

Email: [kimberly.walker@dfo-mpo.gc.ca](mailto:kimberly.walker@dfo-mpo.gc.ca)

### **1.4 SCOPE OF WORK**

- .1 The scope of work is as per the attached specifications and drawings.

### **1.5 COMMENCEMENT AND COMPLETION**

- .1 The Contractor will commence work within 2 weeks after contract award. The physical works must be installed between December 10, 2013 and January 10, 2014, after contract award. The unit must be on-line and working effectively by January 10, 2014 in order to support hatchery operations.
- .2 It is of high priority that hydro service is restored to the pumphouse as soon as possible to mitigate risk during emergency situations requiring electric pumps. The maximum

**Fisheries and Oceans Canada  
Puntledge River Hatchery  
Motor Control Center Replacement**

**STATEMENT OF WORK  
F5211-130175**

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time without electrical service during change over to the new system will be 3 days or less.

- .3 A completion schedule is to be provided with the Construction Tender Form.

**1.6 WORK BY OTHERS**

- .1 All sub-contractors must be supervised by Contractor.

**1.7 CONTRACTOR USE OF PREMISES**

- .1 Execute work with least possible interference or disturbance to building operations and B.C. Hydro operations. Abide by B.C. Hydro operations and safety protocol.
- .2 Limit use of premises for work, for storage, and for access, to allow:
  - .1 Work by other contractors.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Where security is reduced by work, provide temporary means to maintain security.
- .5 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .6 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .7 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Electrical Consultant.
- .8 At completion of operations, condition of existing work is to be equal or better than that which existed before new work started.
- .9 Departmental representative will not assign sanitary facilities for use by Contractor's personnel.

**1.8 SPECIAL REQUIREMENTS**

- .1 Ensure that Contractor personnel employed on the site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .2 Contractor and workers must participate and complete the BC Hydro Safety Training – WPP, Level A and the site local awareness component prior to work commencing. Trainer is to be hired at Contractors expense. (Name of trainer will be provided by DFO representative upon request).

**Fisheries and Oceans Canada  
Puntledge River Hatchery  
Motor Control Center Replacement**

**STATEMENT OF WORK  
F5211-130175**

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- .3 Contractor may be requested to provide Safety Plan to BC Hydro representative.

**1.9 DRAWINGS**

- .1 Details of the work are shown on DFO Drawings. The following is a list of the drawings, which are attached to, and form part of, these specifications:

<b>DWG FILE NO.</b>	<b>TITLE</b>
31-6A-M32	Key Map, Site Location and Site Plan
1-5-A	Pump house Floor Plan
2-5-A	Existing MCC Elevation
3-5-A	Revised Floor Plan
4-5-A	Revised MCC Elevation
5-5-A	(Revised) One Line

- .2 The above drawings will be supplemented by manufacturer's shop drawings.
- .3 The Contractor shall examine all drawings in advance of construction and shall advise the Engineer of any apparent errors, discrepancies or inconsistencies, in order that the Engineer can provide instructions clarifying the design.
- .4 The Contractor shall also advise the Electrical Consultant of any discrepancies or apparent inconsistencies between the drawings and the specifications, in order that the Engineer may clarify the intent of the Contract.

**2.0 SITE INSPECTION**

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- .1 A formal pre-award site meeting will be held on Wednesday August 28<sup>th</sup>, 2013. Alternate date may be considered if deemed necessary by Departmental Representative.

**2.1 SUBMISSION OF Motor Control Center (MCC) LAYOUT**

- .5 All proposal responses must include a drawing describing the MCC design, prepared by the manufacturer.
- .6 The MCC design information must detail the location of each major component and provide the manufacturers part number for that component.
- .7 MCC designs may be provided to the Electrical Consultant upon bid closing to ensure compliance with the drawings and specifications have been met prior to contract award.

**2.2 MEASUREMENT AND PAYMENT**

**Fisheries and Oceans Canada  
Puntledge River Hatchery  
Motor Control Center Replacement**

**STATEMENT OF WORK  
F5211-130175**

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The quantities stated in the Construction Tender Form are given for the purpose of providing a basis for comparison. Payment will be made only on authorized quantities as determined in the field by the Engineer. No guarantee is given that actual quantities will conform in any way with the quantities shown. Offers and payment for the work supplied by the Contractor shall be at the unit rate prices of the schedule whether the quantities are increased or decreased. The work may be terminated or extended at the discretion of the Engineer.

- .1 Payment will be based upon the prices set out in the attached Construction Tender Form.
- .2 In the case of a lump sum price, partial payment will be made based on the Fisheries and Oceans Canada representative's estimate of the work completed at time of payment.



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# MCC REPLACEMENT – SCOPE OF WORK

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## Contents

1. INTRODUCTION .....	1
2. SCOPE OF WORK .....	2
3. MCC OPERATING CONDITION .....	2
4. DESCRIPTION OF MCC FUNCTION .....	2
5. REPLACEMENT MCC DETAILS .....	3
6. CONTROL COMPARTMENT .....	4
7. LAYOUT.....	4
8. REQUIRED DOCUMENTATION.....	4
9. OTHER REQUIREMENTS .....	5
10. CERTIFICATIONS & STANDARDS.....	5
11. COMMISIONNING .....	5

## 1. INTRODUCTION

It is the intention of this project that an existing multi function motor control center (MCC) currently installed in the pump house building of this facility be removed and replaced with a new multi-function electrical cabinet containing identical and extended features. The expectation is that this project will preserve all existing functionality (by way of new equipment) and also will add capabilities for the facility to operate from a diesel standby generator.

The primary reason for removal of the existing MCC cabinet is simply based on age of the equipment. The owner has designated that this unit be replaced as part of a proactive upgrade program.

The replacement MCC will include a 400A BC Hydro service entrance, an integrated transfer switch, a set of motor starters and circuit breakers, a control section, and a lighting panel with driving transformer. Due to the inclusion of the transfer switch and also because BC Hydro requires significantly more space for a service entrance (compared to the existing MCC service entrance) the new MCC will be longer than the existing MCC. To accommodate for the extended length the existing control cabinet is to be removed and incorporated into the MCC.

This project will be completed under two parallel contracts. The main contract, described herein, is to be carried out by a competent electrical contracting firm with experience in industrial work. A second contract has been awarded to a contractor specializing in controls hardware and software.

The successful proponent will be expected to work collaboratively with the control specialist who will take responsibility for transferring the control hardware into the new MCC and updating the control code to include generator and transfer switch status monitoring.

**The drawings and specifications are complementary. Alert the electrical consultant regarding perceived conflicts. In the case of conflict the most expensive option shall prevail unless amended officially.**

## 2. SCOPE OF WORK

A high level description of the scope of work involved in this project follows. This list covers the main activities but is not intended to provide a complete and detailed list of all tasks required to properly execute the project. Proponents are advised to carefully review the drawings and specifications.

- a) Initial survey and planning. Project plan containing key dates and activities to be submitted to DFO and this consultant for review.
- b) Removal of existing MCC, PLC cabinet, desk, and lighting battery backup unit.
- c) Removal of unused power correction capacitors
- d) Installation of new MCC and reconnection of all devices powered or controlled by the unit
- e) Connection of generator feeder to MCC transfer switch.
- f) Connection of generator control/status transfer switch and control section.
- g) Reconnection of pass through signals from Aeration Building to the control section.
- h) Re-installation of warning strobe light.
- i) Installation of a new battery backup light unit.
- j) Initial testing by contractor
- k) Acceptance testing (electrical contractor, controls contactor owner, and electrical consultant)

## 3. MCC OPERATING CONDITION

Service:                                   a) Hydro: 600 V/60 Hz/3 $\Phi$ . 400A supply  
  b) Generator: 600V /60 Hz/3 $\Phi$  200A

Available Fault Current:           35000A est

Enclosure:                               NEMA 1 (general purpose)

Maximum Dimensions                Width: 140                           Height: 90"                   Depth:20"<sup>1</sup>

## 4. DESCRIPTION OF MCC FUNCTION

This section provides a verbal description of each function of this MCC cabinet. This material complements the drawings provided. Further details are provided in the next section.

- a) A BC Hydro approved service entrance, with disconnect and support for metering, compliant with BC Hydro standards for 400A three phase service entry.

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<sup>1</sup> There is limited clear space in front of the MCC so it is critical to minimize the depth of the cabinet. Solutions with a depth exceeding the 20" allotted will not be considered.



- b) An automatic transfer switch, contained within the MCC cabinet.
- c) Power/control to four non reversible pumps:

Pump	Size	Drive
Pump 1	75HP	VFD
Pump 2	125HP	VFD
Pump 3	125HP	Non Rev. Starter
Pump 4	40HP	Non Rev. Starter

All pumps include thermostats connected to the MCC.

- d) Power to a ¾ HP ventilation fan is supplied from the MCC. This is presently controlled by a thermostat, but will be controlled by the PLC in the revised version.
- e) The MCC supplies power to the aeration building by way of a 70A circuit breaker.
- f) The MCC supplies power to a travelling screen control panel by way of a 20A circuit breaker.
- g) The MCC contains a 10KVA transformer (240 volt single phase output) feeding a 30 circuit lighting panel board which supplies power to receptacles, lights, and other miscellaneous circuits. Branch circuits are all single pole 15A, except for one 30A 2p, and one 15A 2p.
- h) This MCC will contain a PLC, HMI, and supporting equipment such as power supply, relays, and UPS, and terminals. The bulk of the parts are re-used from the existing PLC cabinet.
- i) One or more sections allocated to power or signal interconnections may be required, as existing conductors and control cables may not reach the destination section in the new MCC. As part of the scope of work the contractor is to evaluate the existing cabling and determine where cable extensions are required, and how such extensions will be installed.

## 5. REPLACEMENT MCC DETAILS

#	Section	Description	Notes and Specification
1	BC Hydro Service Entry	This section is for exclusive use as a BC Hydro service entrance. Hydro service cables are bottom fed.	Service entry to be approved by BC Hydro.
2	Main Breaker & Utility meter section.	This section provides the main 400A disconnect and CTs and PT's for metering.	
3	Transfer Switch	400A automatic transfer switch, designed to automatically start the generator and transfer the system load to the generator.	<p>400A transfer switch with 2 auxiliary form C contacts indicating loss of primary power. (used for startup of diesel pumps.</p> <p>Designed to UL 1008 CSA C22.2 No 178 standard for Automatic Transfer Switches.</p> <p>All load transfer sequences are "open transition".</p> <p>Rated for 100% system load.</p> <p>Visible status indicator.</p> <p>Loss of phase detection.</p> <p>Load side digital meter indicating Amps. Volts,</p>

			Frequency, Power Factor, kW.  Auto exercise timer, for periodic startup of the generator.
4	Pump 1 CB	175A 3P breaker	At least 1 form C auxiliary contact required for each CB.
5	Pump 2 CB	225A 3P breaker	
6	Pump 3 Starter	125 HP 3P Non reversible starter	Current limiting (soft) starters are preferred but are not considered essential.
7	Pump 4 Starter	40HP 3P Non reversible starter	
8	Vent Fan Starter	¾ HP Non reversible starter	
9	Aeration Building Feeder	70A Circuit Breaker	Where possible, circuit breakers should be combined to save space.
10	Automatic Differential Control Panel Feed	20A Circuit Breaker	
11	Transformer	600:120/240V 10KVA Transformer with 20A primary protection	
12	Panel	120/240V 225A Panel, 30 CCT count	
13	Terminal Space	Enclosure for connecting signals from Aeration Building and PLC section, located at base of PLC section.	
14	PLC Enclosure	20" wide by approx 30" high section for controls. The door to this section will contain the HMI, and shall be at a convenient height for operation.	

## 6. CONTROL COMPARTMENT

The replacement MCC must integrate the functionality and components currently provided by the adjacent PLC cabinet, in a 20" wide MCC section. The task of reconfiguring the existing controls to fit the narrower form factor will be the responsibility of the control contractor as part of a separate contract. The electrical contractor responsible for the MCC replacement shall coordinate with the control contractor in order that this work may proceed efficiently.

## 7. LAYOUT

The layout of the cabinet shall generally conform to the layout described in the drawing sheet E3. Contact this office to discuss variations.

## 8. REQUIRED DOCUMENTATION

Approval drawings shall be in PDF format and include elevations, MCC component descriptions and specifications, and overall wiring diagram.

As built drawings shall be provided in PDF and Hardcopy format and include elevations, wiring diagram and schematic.

Operation and Maintenance manuals shall be provided in digital format as well as hardcopy in the form of two duplicate binders, with tabbed sections for each major element. User manuals for major components such as the transfer switch shall be included.

A "theory of operation" for the MCC shall be included in the manual in both hardcopy and digital format.

All hardcopy to be legible and machine printed. A CD-ROM disk is to be provided containing the source files for these binders.

## 9. OTHER REQUIREMENTS

- MCC: The operator handle of all units is to be interlocked with MCC frame
- MCC: Terminal blocks are to be mounted inside compartments, and not in the vertical or horizontal wireways
- MCC: A grounding stab shall be provided on each plug in unit, and designed such that ground stabs engage prior to power stabs.
- Emergency light: Twin 12W heads, 1 hour minimum standby rating.

## 10. CERTIFICATIONS & STANDARDS

Equipment and workmanship must meet or exceed the requirements listed in the most recent edition of the following standards:

- |    |           |   |
|----|-----------|---|
| a) | UL 845    | Motor Control Centers.                        |
| b) | UL 489    | Molded Case Circuit Breakers and Enclosures.  |
| c) | UL 508    | Industrial Control Equipment.                 |
| d) | ICE 439-1 | Low Voltage Switchgear and control assemblies |

All work is to comply with the latest edition of the Canadian Electrical Code.

## 11. COMMISSIONING

Refer to the Commissioning Test Procedure for a description of the acceptance tests. This document is included to provide an indication of the procedures that will be used for verification that the system is fully functional, but does not preclude other tests as deemed appropriate by engineer and the DFO.



## DFO PUNTLIDGE PUMP HOUSE ELECTRICAL RENOVATION – COMMISIONING AND STARTUP TEST PROCEDURE.

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*This document describes the acceptance test procedure for the Puntledge Hatchery Pump House electrical renovation. The scope of the test procedure encompasses the work carried out by the General Electrical Contractor and the Controls Specialist. It is the expectation of the project that the two parties collaborate in good faith to address deficiencies. In the case of a dispute the electrical consultant shall be the judge of which party bears responsibility for solving a particular issue.*

### 1. Motor control

The contractor shall demonstrate that the three modes of operation (automatic, manual and disabled) function correctly for each motor. For pump 1 and pump 2 the interface between PLC and VFD will be verified by way of demonstration. The PLC shall sense the speed and current of each pump properly, and shall have speed control of each pump as expected.

### 2. Transfer Switch

The transfer switch controller is to be configured for this application. This work includes:

- Setup of the power characteristic (e.g voltage, phases), programmable outputs, transfer timing, system clock, auto generator exercise timer, utility return time, etc.
- Calibration, as per manufacturer's instructions

While the pump station is actively supplying water to the hatchery, demonstrate three successive and successful automatic transfers from grid power to standby power. The last transfer shall be initiated by opening the BC Hydro main disconnect breaker.

Operation of the system is to be demonstrated both under BC Hydro supply, and under generator power.

### 3. Lighting Panel Board

The voltage at the lighting panel board shall be recorded and must be within 2% of nominal 120/240 volts AC. All connected loads at this panel shall be served with electrical power.

### 4. PLC / Control

*Note: It is the intention of this section that signal connectivity to and from the PLC be verified as trouble free.*

The following PLC functions shall be demonstrated to be functional:

- Analog inputs: River level, sump level

- Digital inputs: Each digital input listed on sheet 1 of the control wiring diagram, and each new digital input (such as generator and transfer switch status signals) shall be verified by demonstration. A typical test will consist of manually overriding the external contact that provides the input and verifying that this is detected by the PLC.