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G1J 0C7

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
TPSGC-PWGSC
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Title - Sujet Reconstruction Quais 97 & 98	
Solicitation No. - N° de l'invitation EE517-142232/A	Amendment No. - N° modif. 010
Client Reference No. - N° de référence du client EE517-14-2232	Date 2014-05-16
GETS Reference No. - N° de référence de SEAG PW-\$QCM-008-15898	
File No. - N° de dossier QCM-3-36330 (008)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-05-28	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Rochette, Jean	Buyer Id - Id de l'acheteur qcm008
Telephone No. - N° de téléphone (418) 649-2834 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Solicitation No. - N° de l'invitation

EE517-142232/A

Amd. No. - N° de la modif.

010

Buyer ID - Id de l'acheteur

qcm008

Client Ref. No. - N° de réf. du client

EE517-14-2232

File No. - N° du dossier

QCM-3-36330

CCC No./N° CCC - FMS No/ N° VME

Solicitation No – N° de l'invitation
EF997-142232/A
Client Ref No. – N° de réf. du client
EF997-14-2232

Amd. No. – N° de la modif.
010
File No. – N° du dossier
QCM-3-36330

Buyer ID – id de l'acheteur
qcm008

Title : RECONSTRUCTION OF WHARVES 97 & 98

Included in the present amendment :

1. Questions and answers 7 to 23
2. Amendment no 6
3. Addenda no 3

QUESTIONS AND ANSWERS :

Answers to questions 7 to 23 are include in addenda no 3 attached.

AMENDMENT no 6

1. Appendix 1 – Combined Price Form :
DELETE Appendix 1
INSERT the attached Appendix 1

ADDENDA no 3

See Addenda no 3 herein after.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

APPENDIX 1 - COMBINED PRICE FORM

- 1) The prices per unit shall govern in establishing the Total Extended Amount. Any arithmetical errors in this Appendix will be corrected by Canada.
- 2) Canada 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.

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.

Item	Description	Firm Total Amount
1	Mobilization and demobilization	\$
2	Worksite organization	\$
3	Demolition and excavation	\$
6.2	Quarry run stone between new and existing walls	\$
8.7	Concrete of wharf 96 connection	\$
20	Pedestrian gangway	\$
21	Floating dock	\$
22	New hoisting system (West wall of pit)	\$
23	Lifting system for gangway	\$
26	Block 97A	\$
27	Block 97B	\$
28	Block 98	\$
29	Landing pad lights	\$
32	Storm sewer pipes	\$
33	Potable water pipes	\$
34	Gutter grates	\$
35	Water pipe for service station	\$
36	Supply and installation of cathodic protection elements	\$
40	Rising barrier	\$
LUMP SUM AMOUNT (LSA) Excluding GST and QST		\$

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	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit (PU) Excluding GST and QST	Extended amount (EQ x PU) Excluding GST and QST
4	Granular materials				
4.1	Stone 20-200 mm	m3	14 930	\$	\$
4.2	Stone 20-200 mm for filling voids under relieving platform	ton	3 000	\$	\$
4.3	Stone 50-25 mm	m3	620	\$	\$
4.4	Granular Foundation MG-56	m3	2 013	\$	\$
4.5	Granular Foundation MG-20	m3	1 049	\$	\$
5	Berm Stone 400-600 mm	m3	5 262	\$	\$
6	Quarry run stone 0-300 mm				
6.1	Quarry run stone for berm	m3	13 458	\$	\$
7	Quarry run stone between new and existing walls	m2	10 685	\$	\$
8	Concrete				
8.1	Concrete slab on ground	m3	2 576	\$	\$
8.2	Concrete of the copewall of the pile-sheet pile and sheet piling sections (including the bollard bases)	m3	577	\$	\$
8.3	Pile filling concrete	m3	1 344	\$	\$
8.4	Concrete of type 1 and type 2 deadmen	m3	174	\$	\$

Item	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit (PU) Excluding GST and QST	Extended amount (EQ x PU) Excluding GST and QST
8.5	Concrete of the anchor wall of Wharf 98 (type 3)	m3	13	\$	\$
8.6	Concrete of the type 4 block	m3	44	\$	\$
9	Piles	unit	71	\$	\$
10	Rock sockets for piles	unit	19	\$	\$
11	Steel sheet piles	unit	112.5	\$	\$
12	Wailings	lin m	54.3	\$	\$
13	Tie rods				
13.1	Supply of drilled and inclined tie rods	lin m	2 073	\$	\$
13.2	Supply of horizontal tie rods	lin m	1 239	\$	\$
13.3	Supply of tie rods for bollards	lin m	231	\$	\$
13.4	Installation of drilled and inclined tie rods	unit	45	\$	\$
13.5	Installation of horizontal tie rods	unit	39	\$	\$
13.6	Installation of tie rods for bollards	unit	18	\$	\$
14	Connections of tie rods to piles	unit	71	\$	\$
15	Bituminous pavement	m2	2 591	\$	\$
16	Fenders				
16.1	Cylindrical fenders, anchors and plates of Wharf 97	unit	19	\$	\$
16.2	Trapezoidal fenders, anchors and plates of Wharves 97-96	unit	2	\$	\$
16.3	Anchors and plates of Wharf 98	unit	6	\$	\$

Item	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit (PU) Excluding GST and QST	Extended amount (EQ x PU) Excluding GST and QST
17	Bollards and cleats				
17.1	Supply of painted bollards	unit	10	\$	\$
17.2	Installation of bollards	unit	8	\$	\$
17.3	Supply and installation of cleats	unit	3	\$	\$
18	Ladders	unit	10	\$	\$
19	Protection bollards				
19.1	Supply of protection bollards for slabs	unit	13	\$	\$
19.2	Installation of protection bollards on slabs	unit	7	\$	\$
19.3	Supply of protection bollards on pavement	unit	7	\$	\$
19.4	Installation of protection bollards on pavement	unit	3	\$	\$
24	Guardrails				
24.1	Guardrails of the pit	lin m	20	\$	\$
24.2	Guardrails of the ramp	lin m	6.1	\$	\$
25	Safety net	lin m	52	\$	\$
30	Stormceptor STC-750 treatment manholes	unit	4	\$	\$
31	Precast concrete manholes	unit	4	\$	\$
37	Underwater Excavation				
37.1	Clean soil to the berm	ton	50	\$	\$
37.2	Inferior non contaminated soil in A	ton	100	\$	\$

Item	Class of Labour, Plant or Material	Unit of Measurement	Estimated Quantity (EQ)	Price per Unit (PU) Excluding GST and QST	Extended amount (EQ x PU) Excluding GST and QST
37.3	Contaminated soils A-B	ton	400	\$	\$
37.4	Contaminated soils B-C	ton	400	\$	\$
37.5	Contaminated soils higher then C	ton	100	\$	\$
37.6	Debris and large aggregates	ton	30	\$	\$
38	Excavation terrestre				
38.1	Clean soil to the berm	ton	100	\$	\$
38.2	Inferior non contaminated soil in A	ton	1000	\$	\$
38.3	Contaminated soils A-B	ton	1700	\$	\$
38.4	Contaminated soils B-C	ton	1500	\$	\$
38.5	Contaminated soils higher then C	ton	400	\$	\$
38.6	Debris and large aggregates	ton	50	\$	\$
39	Protection frame	unit	2	\$	\$
TOTAL EXTENDED AMOUNT (TEA) Excluding GST and QST					\$

TOTAL BID AMOUNT

TOTAL BID AMOUNT (LSA +TEA) Excluding GST and QST	\$
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PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
QUAIS DE LA REINE - RECONSTRUCTION OF WHARVES 97-98
(PROJET N° 052833-001 & R.052834.001)

ADDENDUM N° 3

ADDENDUM N° 3



1. GENERAL

This addendum is part of the tender call documents in the same way as the plans and specifications and is applicable immediately; in case of conflict between plans and this addendum, the latter must prevail.

The contractor must, upon reception of this addendum, inform the sub-contractor immediately of its content, as the requirements or modifications contained therein remain under its full responsibility.

2. TECHNICAL SPECIFICATIONS

Sections 01 11 00 Work related general information

Article 1.8 Measurement for payment purposes

Delete: Item no 27 – Block 97b and replaced by:

Item no 27 b– Block 97b

- .1 This item is measured as a unit and includes, without limitation, the dismantling of the existing block as well as all wiring, conduit and associated accessories. In addition, this item also includes the supply and installation of the new block 97B including electrical appliances included such as distribution panels, transformers, MALT, connection sockets, etc..., And conduits, pulling boxes, wiring, circuit breaker etc..
- .2 This item excludes excavation of trenches and concrete bases.

Delete: Item no 28 – Block 98 and replaced by:

Item no 28 – Block 98

- .1 This item is measured as a global unit and includes, without limitation, the dismantling of the existing block and storage during construction as well as the dismantling of all wiring, conduits and associated accessories. Furthermore, this item also includes the reinstallation and modifications of the existing block in addition to the conduits, pulling boxes, wiring, circuit breaker, power supply and the connection to various associated equipment, services in connection to the new motorized gate, a new light pole for the lighting of the pit (wharf 98), etc.

Add the following items:

Item no 39: Protection frame

- .1 This item is measured by unit. It includes the material and installation required for the implementation of protection frame for the electric blocks.
- .2 Supply and installation of all hardware required for a complete installation are included in this item.
- .3 The reinstallation of the life-buoy is part of this item.

Item no 40: Access gate

- .1 This item is measured as a global unit. It includes the material and installation required for the placement of the access gate of wharf 98.
- .2 The supply and installation, for the access gate, of all hardware required for a complete installation are included in this item.
- .3 The electric connection is part of a different item.

Section 26 05 05 Electricity – Scope of Work Specific Provisions, Descriptions and Lists

Article 1.2.1.1

Add:

- Perform disconnection of existing motorized gate at wharf 98.
- Extend the existing 120V emergency supply circuit up to the two new cabinets of the motorized gate.
- Provide an access control system with two magnetic card readers (one on each side of the barrier) and an emergency button (next to the Pad Alpha) in order to operate the motorized barrier. The control system must be compatible with the existing Kantec system. It must be connected to the existing network using a new «IP Link» Kantec module so that the motorized gate can be operated through the security checkpoint. The new «IP Link» will be located in the computer room (#9-202) in the building 900, which is about 30m from the motorized gate. Furthermore, the control system of the motorized gate will have to be connected to the fire alarm system of Chubb Edwards brand currently in building 900. All wiring will be under conduit. Provide programming, testing and activation of the access control system and the fire alarm system by the respective manufacturer of these two systems. A separate report must be submitted in connection with the work done by the two manufacturers.

Note: The access gate is included in the item no 40.

Section 31 63 18 Rock anchoring system

Article 3.4 Inspection and testing

Article 3.4.3

Delete: .1

Insert:

- .1 Contractor must realize a loading test on 20% of inclined tie-rods after first grouting but obligatory on the 3 first installed inclined tie-rod. Tested tie-rods will be determined by the Departmental Representative. Testing load will be 1.33 times the service load. This service load being 2200kN, the tested load will be of 2926kN. The Contractor will be responsible for all fees related to set-up, equipment and labor to realize loading tests. Minister will pay for the laboratory which will supervise testing.

3. PLANS

Sheet S07

A protection frame is added around the electric blocks.

Sheet S07

An access gate is added to wharf 98.

Sheet S30

Details are made on the frame around the pulling boxes.

Sheet S37

Details are added for the protection frame.

Sheet S37

Details of the service station's slab of wharf 98 are added.

Sheet PC05/08

Sheet PC05/08 is replaced by sheet PC05/08 of this addendum.

Sheet E01/03

Note 16 is modified (see extract E01/07).

Sheet E02/03

Item identification 44 added (see extract E02/07).

Sheet E02/03

Identification of items 5, 6, 9 and 10 are added (see extract E03/07).

Sheet E02/03

Items 60, 61 and 62 added (see extract E04/07 and 07/07).

Sheet E02/03

Items 9 and 11 are modified (see extract E05/07).

Sheet E02/03

Items 41, 42, 43, 49, 50 and 55 are modified (see extract E06/07).

4. ADDITIONAL INFORMATION

The call for tender attached in this addendum replaced the call for tender of addendum no 2.

Cathodic protection

1. Pulling boxes of anodes Ø 300 x 350 on plans for tender will be made according to drawing PCA1/1. The pulling box is of type IPEX, Sceptra JB884 model or equivalent.
2. Pulling boxes 600x300x600 on plans for tender are of type Synertech, Oldcastle 1324-24 model or equivalent.
3. Pulling boxes 600x600x600 on plans for tender are replaced by a box 600x1800x600 of type Synertech, Oldcastle 2436-24 model or equivalent.
4. On sheets of plans PC01/08 to 08/08 in areas where manholes and pre-fabricated manholes are specified, it should be written pulling boxes.

Technical specifications for cathodic protection are similar to those prescribed in section 26 05 34 of the electricity specifications.

- .5 75-mm PVC ducts integrated in the backfill along the sheet piles will be adequately protected to avoid any breakage during backfilling. If needed, a metal duct cover will have to be installed.

Question 7:

Can you specify the excavation limitations at the berm level of wharf 96?

The Contractor must make his own validation according to the live loads limitations specified in the plans and of his own construction loads. A working method signed and sealed by an engineer member of the OIQ will be required.

Question 8:

Is there a possibility to meet steel piles within the existing docks that could interfere with the future inclined ties?

Yes, in the area of wharf 98, H-piles support beams of a transfer concrete slab. Based on the reference plans, the location of inclined tie rods are located between two H-pile rows. But it is possible that the location of the H-piles differs from what is mentioned in plans. It is recommended that the Contractor conducts its own exploration wells to confirm the location of the H-piles. Any interference with respect to the location of the inclined tie rods should be reported to the Departmental Representative which should take actions to address this situation. No additional fees will be paid to the Contractor for any discrepancies in the information provided and actual locations.

It is also possible that steel elements be present inside the actual wharf, the contractor will have to adjust its working method according to any situation

Question 9:

Can the PTFE material to cover the guide-piles be replaced by a material of UHMW type?

No. However, as the purpose of this product is to prevent the steel-on-steel between the guide-pile and the clamping system of the floating dock, the Contractor can propose an equivalent system in PTFE on the dock's clamping system instead of on the guide-pile, to reduce the amount of PTFE required.

It is to be confirmed that the clamping system and its engineering are included in the payment item no 21 – Floating dock

Question 10:

Do special measures need to be taken to protect the concrete slabs of the traffic apron or of the storage of materials?

In areas reserved for work, it is the contractor's responsibility to deliver them in their original condition.

Question 11: What are the technical criterion of Trapezoidale/Arch Fenders?

Information on fenders are in section 35 59 13.19 Rubber mooring fenders of the specifications article 2.1.

What are the technical criterion for cleats?

Informations regarding cleats are in the section 35 59 29 – Mooring devices of specifications article 2.1.

Question 12:

In article 1.4 of section 01 11 00, you mention that the supervisor will occupy office 500 during construction. In article 1.7.4 of section 01 52 00, you mention that an office must be available to the supervisor. Should we provide a construction facility or the supervisor will occupy office 500 as specified.

In the section 01 11 00 of the specification, it is mentionned of a Departmental Representative and not of the supervisor. The supervisor must have his office as specified in section 01 52 00.

Question 13:

In the specifications, the execution time does not seem to be specified. Is there one provided?

Work duration is specified in Article SA-06 of the call for tenders' document.

Question 14:

On plans, load restrictions are presented. Is it possible to know from which moment these restrictions no longer hold:

- **Once the piles/sheets piles are installed and the anchors at 45degrees in the rock performed?**
- **Once the backfilling between the new and old sheet piles will be performed?**

The Contractor must make his own investigation and present his working method in a document prepared, signed and sealed by a qualified engineer member of the Ordre des Ingénieurs du Québec (OIQ). Also see addendum no2.

On the first 15m of the wharf 97's facade, 0kpa are allows. Must we understand that no traffic will be authorized and that a perimeter will have to be secured?

There is no traffic allowed in the restrictions zones of loads at 0kpa before that the Contractor has secured the area by a working method signed and sealed by a qualified engineer member of the Ordre des ingénieurs du Québec

Question 15:

At the connection of the concrete wharf 96, is it possible to know at what height will the studs be welded. Only the spacing between them is provided.

Studs are required over the entire height from the seabed to the top

Question 16:

Does the client wish to retrieve the bollards, fenders and lamp posts that will have to be removed? If this is the case, is it possible to inform us at how many kilometers from the site will these elements should be stored?

All elements mentioned are to be demolished.

Question 17:

Do we have to empty piles without anchoring of in-situ material before concreting? If so, specify the elevation.

See specifications at section 03 37 26 article 3.1.2.

Question 18:

Must the tie rods be installed before backfilling of the combined walls to the tie rod level? Does the berm have to be in place before backfilling behind the walls?

This question was answered in addendum no 2.

Question 19:

Can the piles be drilled and repaired to perform drilling of inclined tie rods following the pile installation?

Yes. The Contractor must submit his working method which should take into account to restore the structural capacity of the pile.

Question 20:

Plans R15/25 to R18/25 are not readable, is it possible to submit new plans?

These plans are deleted and replaced by new plans attached in this addendum.

97-98-1958-sheet 1 of 4-Part 1

97-98-1958-sheet 1 of 4-Part 2

97-98-1958-sheet 2 of 4-Part 1

97-98-1958-sheet 2 of 4-Part 2

97-98-1958-sheet 3 of 4-Part 1

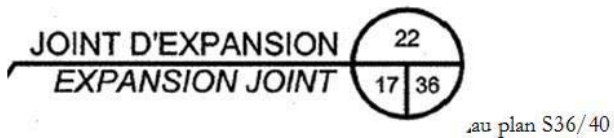
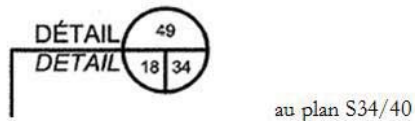
97-98-1958-sheet 3 of 4-Part 2

97-98-1958-sheet 4 of 4-Part 1

97-98-1958-sheet 4 of 4-Part 2

Question 21 :

We cannot find the following cross-sections in the plans:



Detail 49, which can be found in sheet S34/40, is referred to in sheet S17/40 and S18/40. The detail bubble in sheet S34/40 refers to the first sheet on which the detail is found, namely sheet S17/40.

For the details and bubble (22/17/36) regarding the expansion joint on sheet S17/40, it should be written instead «concreting stop» which corresponds to detail 41 on sheet S36/40 and the bubble on sheet S17/40 should then be (41/17/36). This detail appears on two sheets, namely sheet S17/40

and S18/40, however, it is predominant in sheet S18/40. A correction will be made to the construction plans.

Question 22:

Following the section 01 11 00 of the specifications page 11 to 15, we would like to make a few precisions regarding the shed on the floating dock mentioned in item no21 - Floating dock, sub-section .3.

The shed on the floating dock should have the dimensions 2.5mx3.5m, be made of wood and be used for the purpose for which it is intended.

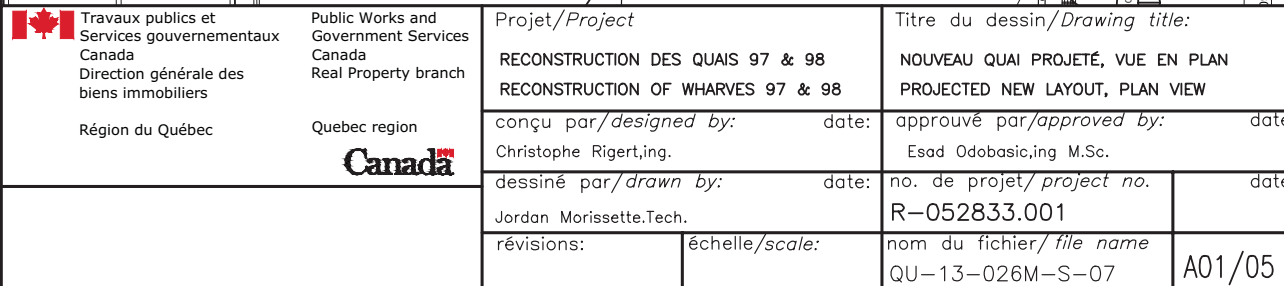
Question 23:

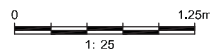
Can you provide us the no. for shackles and swivles at Crosby?


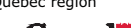
No brand has been specified on the plans. It is the Contractor's responsibility to ensure geometric compatibility (mentioned in plans) for the elements while ensuring the required capacities.

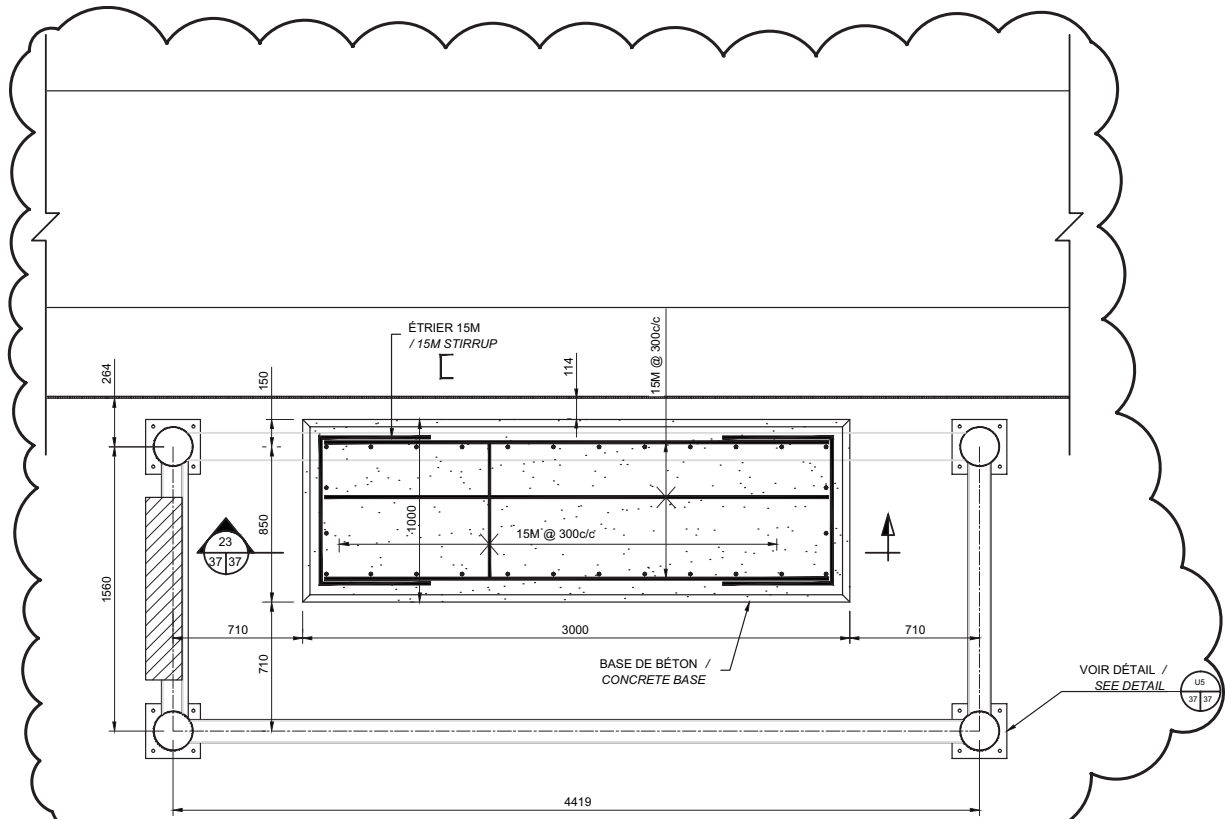


Valérie Despaux, ing.
Chargée de projet

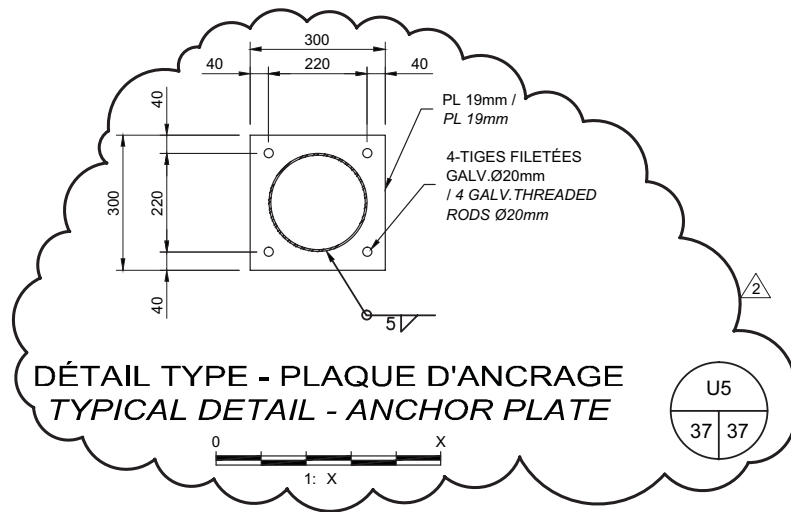




 Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec	Public Works and Government Services Canada Real Property branch Quebec region 	Projet/ <i>Project</i> RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		Titre du dessin/ <i>Drawing title:</i> MUR DE COURONNEMENT, COUPES COPEWALL, SECTIONS	
		conçu par/ <i>designed by:</i> date:		approuvé par/ <i>approved by:</i> date:	
		Christophe Rigert,ing.		Esad Odobasic,ing M.Sc.	
		dessiné par/ <i>drawn by:</i> date:		no. de projet/ <i>project no.</i> date:	
		Jordan Morissette.Tech.		R-052833.001	
révisions:		échelle/ <i>scale:</i>		nom du fichier/ <i>file name</i>	
				QU-13-026M-S-30 A02/05	



VUE EN PLAN
PLAN VIEW



Travaux publics et
Services gouvernementaux
Canada
Direction générale des
biens immobiliers

Région du Québec

Public Works and
Government Services
Canada
Real Property branch

Quebec region



Projet/Project

RECONSTRUCTION DES QAIS 97 & 98
RECONSTRUCTION OF WHARVES 97 & 98

conçu par/designed by:
Christophe Rigert,ing.

dessiné par/drawn by:
Jordan Morissette.Tech.

révisions:

échelle/scale:

Titre du dessin/Drawing title:

BASES ET DALLE DE BÉTON
CONCRETE BASES AND SLAB,

approuvé par/approved by:
Esad Odobasic,ing M.Sc.

no. de projet/project no.
R-052833.001

nom du fichier/file name
QU-13-026M-S-37

A03/05



Travaux publics et
Services gouvernementaux
Canada
Direction générale des
biens immobiliers

Région du Québec

Public Works and
Government Services
Canada
Real Property branch

Quebec region



Projet/Project

RECONSTRUCTION DES QAIS 97 & 98
RECONSTRUCTION OF WHARVES 97 & 98

conçu par/designed by:

Christophe Rigert,ing.

dessiné par/drawn by:

Jordan Morissette.Tech.

révisions:

échelle/scale:

Titre du dessin/Drawing title:

BASES ET DALLE DE BÉTON
CONCRETE BASES AND SLAB.

approuvé par/approved by:

Esad Odobasic,ing M.Sc.

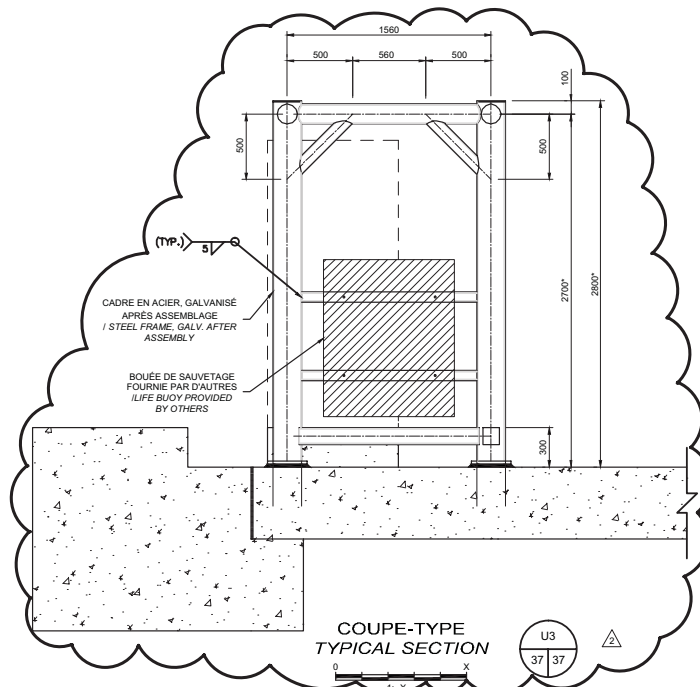
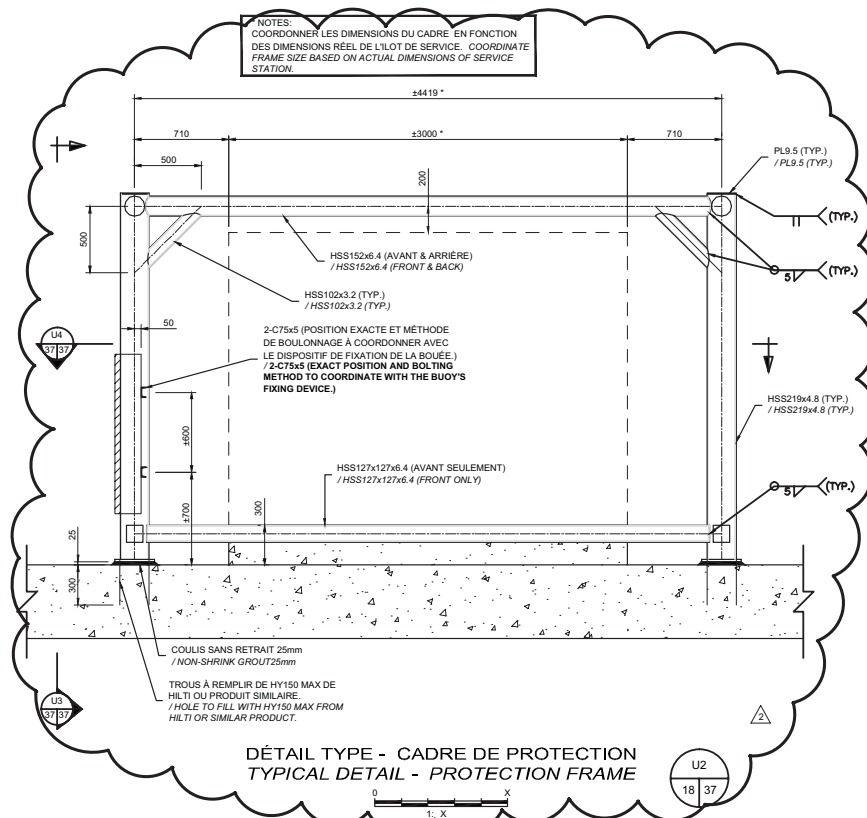
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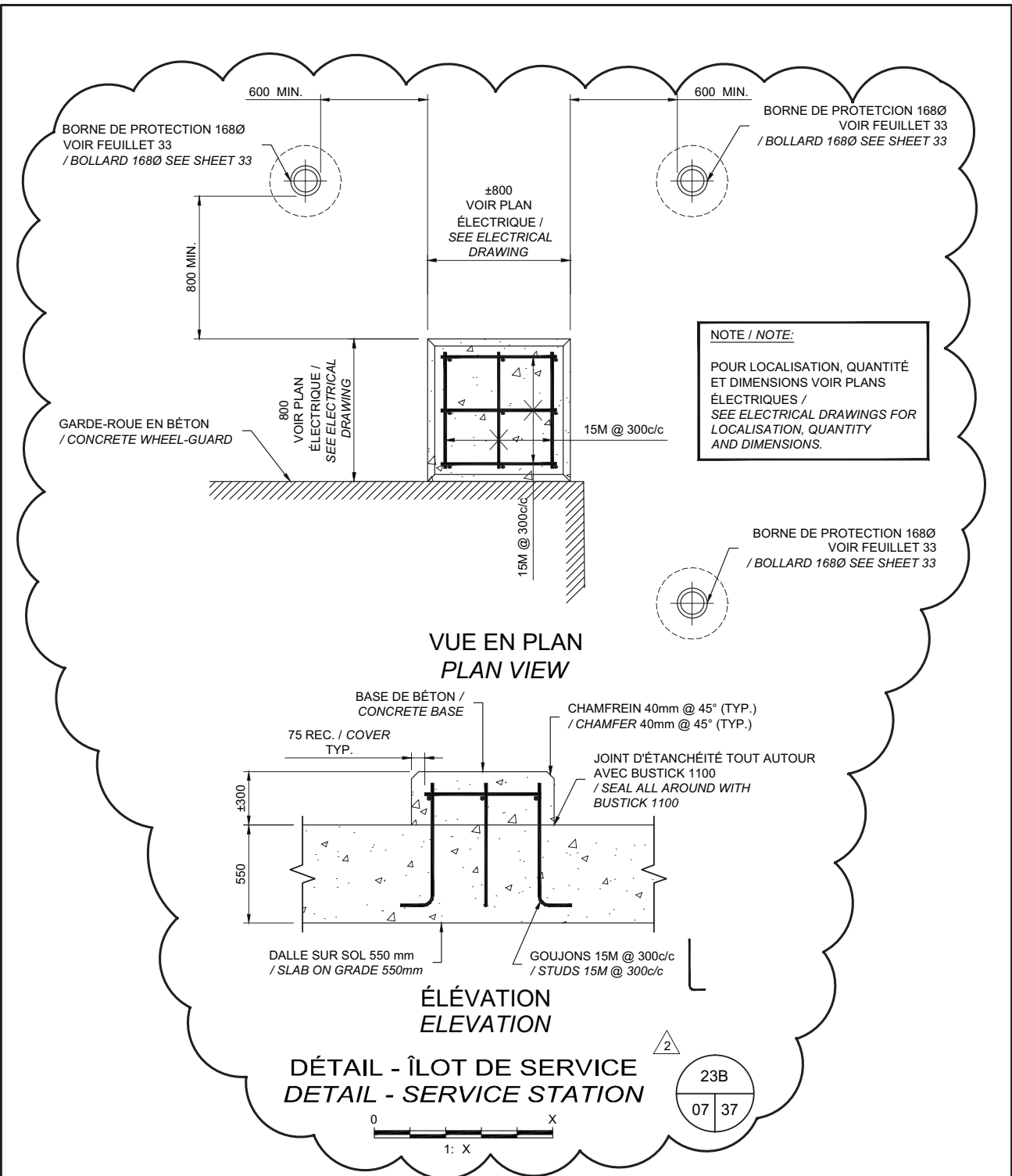
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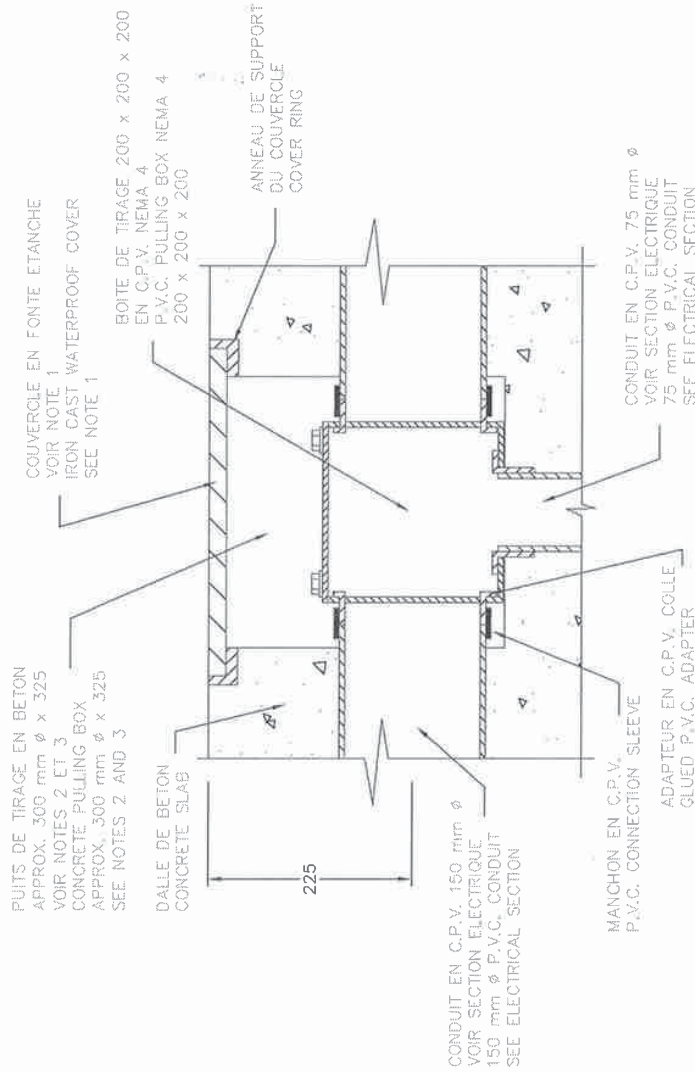
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A04/05





 <div>Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers</div> <div>Région du Québec</div>	<div>Public Works and Government Services Canada Real Property branch</div> <div>Quebec region</div> <div></div>	Projet/ <i>Project</i>		Titre du dessin/ <i>Drawing title:</i>		
		RECONSTRUCTION DES QAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		BASES ET DALLE DE BÉTON CONCRETE BASES AND SLAB,		
		conçu par/ <i>designed by:</i>		date:	approuvé par/ <i>approved by:</i>	
		Christophe Rigert,ing.			Esad Odobasic,ing M.Sc.	
		dessiné par/ <i>drawn by:</i>		date:	no. de projet/ <i>project no.</i>	
		Jordan Morissette.Tech.			R-052833.001	
		révisions:		échelle/ <i>scale:</i>	nom du fichier/ <i>file name</i>	
					QU-13-026M-S-37	A05/05



- NOTE 1: LE Puits de tirage en béton doit respecter les charges de design pour la dalle du quai
NOTE 1: THE CONCRETE PULLING BOX MUST RESPECT THE DESIGN LOAD ON THE WARF SLAB
- NOTE 2: ADAPTER LES DIMENSIONS DU Puits de tirage en béton à la boîte de C.P.V.
NOTE 2: ADAPT THE CONCRETE PULLING BOX DIMENSIONS ON THE P.V.C. BOX
- NOTE 3: REMPLIR DE MOUSSE ISOLANTE LE Puits de tirage en béton jusqu'au niveau du couvercle de la boîte en C.P.V.
NOTE 3: FILL WITH INSULATING FOAM THE CONCRETE PULLING BOX UP TO THE P.V.C. BOX COVER
- NOTE 4: SOUMETTRE LES DESSINS D'ATELIER POUR APPROBATION
NOTE 4: SUBMIT THE SHOP DRAWING FOR APPROBATION

Public Works and
Government Services
Direction des services
Real Property branch
Québec region
Canada

Travaux publics et
Services gouvernementaux
Direction des services
biens immobiliers
Région du Québec

Project
QUAI DE LA REINE-QUAIS / WHARVES 97&98
Details-Puits de tirage pour anodes
DETAILS-ANODES PULLING BOX

Designed by
GEORGE CALAVRE ing.
approved by
GEORGE CALAVRE ing.
project manager
OMAR KALI ing.
QU-13-026M-PC-A1.DWG

date dessinée par / draw by
RENAUD BILODEAU
date vérifiée / scale
1:5
date no. de projet / project no
R-052833.001
No. feuille /
Sheet no
PCA1/1

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- 1
- 16 C.53mmØ CPV SOUS MASSIF DE BÉTON EXISTANT À DÉMANTELER.
EXISTING C.53MMØ PVC TO DISMANTLE.
- 17 PANNEAU DE DISTRIBUTION ÉLECTRIQUE EXISTANT 9R-P3-U5-1, 100A. 347/6
EXISTING ELECTRICAL PANEL 9R-P3-U5-1, 100A. 347/600V. 3 PHASES.
- 18 PANNEAU DE DISTRIBUTION ÉLECTRIQUE EXISTANT 9R-PP1-U5-1, 125A. 120/
EXISTING ELECTRICAL PANEL 9R-PP1-U5-1, 125A. 120/208V. 3 PHASES.
- 19 PANNEAU DE DISTRIBUTION ÉLECTRIQUE EXISTANT 9R-P1-U5-1, 100A. 120/2
EXISTING ELECTRICAL PANEL 9R-P1-U5-1, 100A. 120/208V. 3 PHASES.
- 20 PANNEAU DE DISTRIBUTION ÉLECTRIQUE EXISTANT 9R-PP1-N-1, 400A. 120/2
EXISTING ELECTRICAL PANEL 9R-PP1-N-1, 400A. 120/208V. 3 PHASES.
- 21 BOITIER DE CONTACTEUR EXISTANT 9R-DM1-U5-1 POUR FEUX D'OBSTRUCT
ALPHA" (9R-P1-U5-1).
EXISTING CONTACTOR BOX 9R-DM1-U5-1 FOR OBSTUCTION AND RUNWAY "I
(9R-P1-U5-1).
- 22 RÉSERVOIRS DE CAPTATION ET CONDUITS EXISTANTS À PROTÉGER.
EXISTING CATCH BASSIN AND DUCT TO PROTECT.



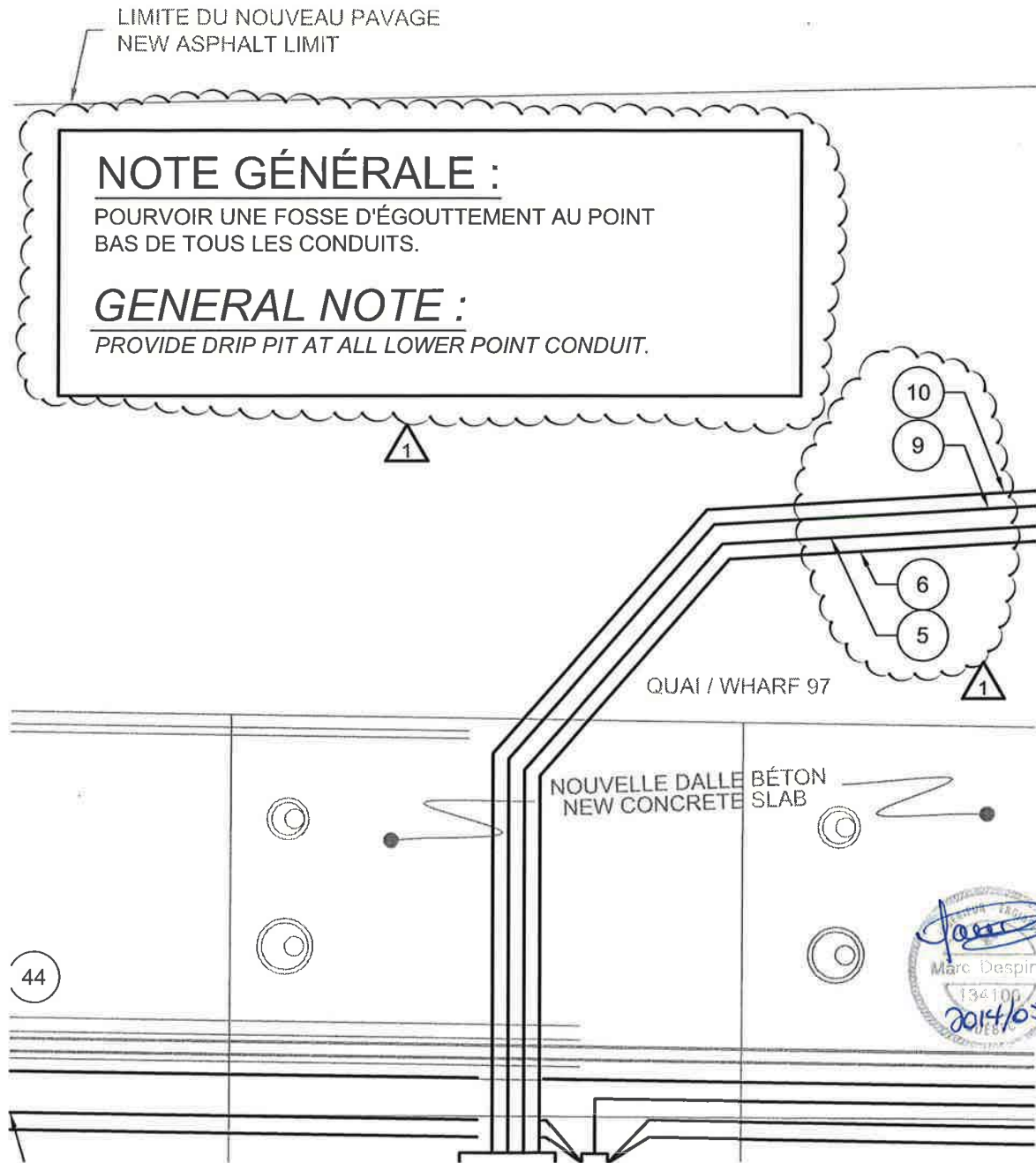
 Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec	Public Works and Government Services Canada Real Property branch Quebec region Canada	Projet/Project		Titre du dessin/Drawing title:	
		RECONSTRUCTION DES QUAYS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		ÉLECTRICITÉ DÉMOLITION ELECTRICITY DEMOLITION	
		conçu par/designed by:	date:	approuvé par/approved by:	date:
		dessiné par/drawn by:	date:	no. de projet/project no.	date:
		M. DESPINS, ing.		M. DESPINS, ing.	
		B. LAFORCE		R-052833.001	
		révisions:	échelle/scale:	nom du fichier/file name	
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Marc Despins
134100
2014/05/13

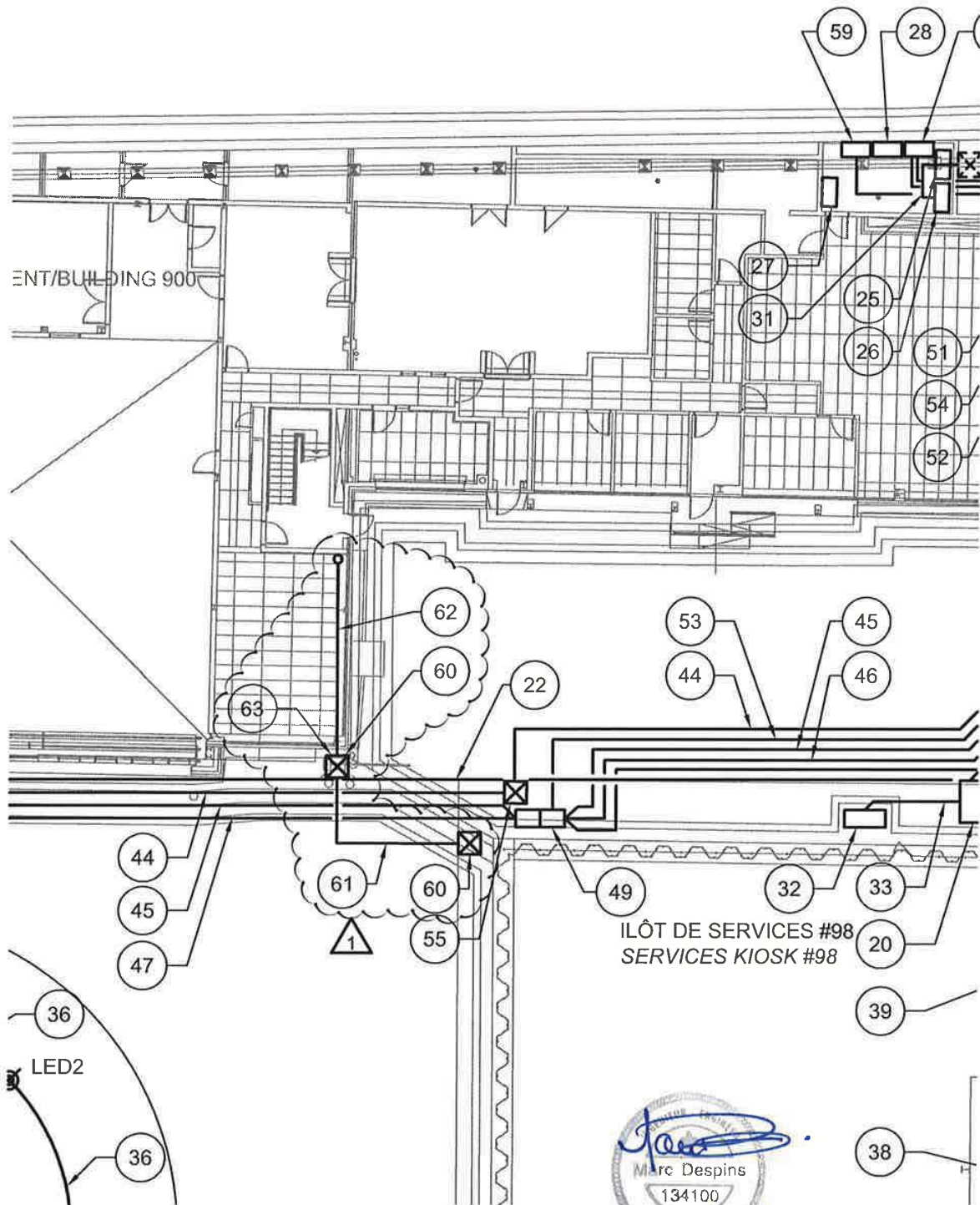
 Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec	Public Works and Government Services Canada Real Property branch Quebec region 	Projet/ <i>Project</i> RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		Titre du dessin/ <i>Drawing title:</i> ELECTRICITE CONSTRUCTION ELECTRICITY CONSTRUCTION	
		conçu par/ <i>designed by:</i> date: M. DESPINS, ing.		approuvé par/ <i>approved by:</i> date: M. DESPINS, ing.	
		dessiné par/ <i>drawn by:</i> date: B. LAFORCE		no. de projet/ <i>project no.</i> date: R-052833.001	
		révisions: 0		échelle/ <i>scale:</i> AUCUN/NONE	
				nom du fichier/ <i>file name</i> E02/07	

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		conçu par/designed by: M. DESPINS, ing. date:		approuvé par/approved by: M. DESPINS, ing. date:	
		dessiné par/drawn by: B. LAFORCE date:		no. de projet/project no. date:	
révisions: 0		échelle/scale: AUCUN/NONE		nom du fichier/file name: R-052833.001	
				E03/07	

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 Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec	Public Works and Government Services Canada Real Property branch Quebec region 	Projet/Project RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		Titre du dessin/Drawing title: ÉLECTRICITÉ CONSTRUCTION ELECTRICITY CONSTRUCTION		
		conçu par/designed by: M. DESPINS, ing.		date:	approuvé par/approved by: M. DESPINS, ing.	
		dessiné par/drawn by: B. LAFORCE		date:	no. de projet/project no. R-052833.001	
		révisions: 0		échelle/scale: AUCUN/NONE		nom du fichier/file name E04/07

- 3 CELLULE DE MESURAGE EXISTANTE CONTENANT LES COMPTEURS DES ARTÈRES ALIMENTANT LES DIFFÉRENTS ÎLOTS SUR LES QUAIS. LE COMPTEUR DE L'ÎLOT #97B DEVRA ÊTRE RACCORDÉ PAR L'ENTREPRENEUR À PARTIR DES TRANSFORMATEURS DE COURANT QUI AURONT ÉTÉ INSTALLÉS PAR CELUI-CI SUR L'ARTÈRE ALIMENTANT CET ÎLOT (VOIR ITEM 2). FOURNIR ET INSTALLER TOUT LE CÂBLAGE REQUIS POUR UNE OPÉRATION FONCTIONNELLE DU MESURAGE.

EXISTING METER CELL OF THE SERVICES KIOSK ON WHARVES. THE KIOSK 97B METER SHALL BE CONNECTED BY THE CONTRACTOR BETWEEN THE CIRCUIT TRANSFORMER INSTALLED BY HIM AND THE FEEDER OF THIS KIOSK (SEE ITEM 2). PROVIDE AND INSTALL ALL THE WIRING FOR A FUNCTIONAL METERING OPERATION.

- 4 3 X (3#500 MCM + 1#3 VERT C. 103mmØ EMT), 1#2/0 CU. NU ÉTAMÉ C.53mmØ EMT.
3 X (3#500 MCM + 1#3 GREEN C. 103mmØ EMT), 1#2/0 BARE COPPER TINNED C.53mmØ EMT.

- 5 3 X (3#500 MCM + 1#3 VERT C. 103mmØ CPV), 1#2/0 CU. NU ÉTAMÉ.
3 X (3#500 MCM + 1#3 GREEN C. 103mmØ PVC), 1#2/0 BARE COPPER TINNED.

- 6 2 X C.103mmØ CPV (RÉSERVE) / 2 X C.103mmØ PVC (RESERVED)

- 7 BOITE DE TIRAGE DE DIMENSIONS APPROPRIÉS POUR LE TIRAGE DES CÂBLES D'ALIMENTATION DE L'ÎLOT #97A ET D'ALIMENTATION/COMMUNICATION DE L'ÎLOT DE SERVICES QUAI #97B.
PULL BOX WITH APPROPRIATE DIMENSION IN ORDER TO PULL THE FEEDING CABLES OF THE WHARF #97A SERVICES KIOSK AND CABLES/COMMUNICATION OF THE WHARF #97B SERVICES KIOSK.

- 8 BOUCHON ÉTANCHE SUR LES CONDUITS.
CONDUITS SEAL CAP

- 9 2 X (C.53mmØ CPV) F. OPTIQUE, 1#2/0 CU. NU ÉTAMÉ / 2 X (C.53mmØ PVC) OPTICAL F., 1#2/0 BARE COPPER.

- 10 2 X (C.53mmØ CPV) VIDEOTRON / 2 X (C.53mmØ PVC) VIDEOTRON.

- 11 4 X (C.53mmØ EMT), 1#2/0 CU. NU ÉTAMÉ ENTRE LA BOÎTE DE TIRAGE ET LE LOCAL #5-205B AU 2IEME ÉTAGE DU BÂTIMENT #500 (±55 MÈTRES)
4 X (C.53mmØ EMT), 1#2/0 BARE COPPER BETWEEN PULL BOX AND ROOM #5-205B AT THE SECOND FLOOR BUILDING #500 (±55 METERS)

- 12 2 X (C.103mmØ CPV) ENTRE LE CONDUIT EXISTANT JUSQU'À LA SECTION DE PUISSANCE DE L'ÎLOT DE SERVICES #97A.
2 X (C.103mmØ PVC) BETWEEN THE EXISTING CONDUIT AND THE POWER SECTION INTO THE SERVICES KIOSK #97A.

- 13 2 X (C.53mmØ CPV) ENTRE LE CONDUIT EXISTANT JUSQU'À LA SECTION DE COMMUNICATION DE L'ÎLOT DE SERVICES #97A.
2 X (C.53mmØ PVC) BETWEEN THE EXISTING CONDUIT AND THE COMMUNICATION SECTION INTO THE SERVICES KIOSK #97A.

- 14 2 X (C.53mmØ CPV) ENTRE LE CONDUIT EXISTANT JUSQU'À LA SECTION DE COMMUNICATION DE L'ÎLOT DE SERVICES #97A.
2 X (C.53mmØ PVC) BETWEEN THE EXISTING CONDUIT AND THE COMMUNICATION SECTION INTO THE SERVICES KIOSK #97A.

- 15 ÎLOTS DE SERVICES QUAI #97A VOIR DÉTAIL.
WHARF #97A SERVICES KIOSK. SEE DETAIL

- 16 ÎLOT DE SERVICES QUAI #97B VOIR DÉTAIL.
WHARF #97B SERVICES KIOSK. SEE DETAIL



<p>Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec</p>	<p>Public Works and Government Services Canada Real Property branch Quebec region</p> <p>Canada</p>	Projet/Project		Titre du dessin/Drawing title:	
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		M. DESPINS, ing.		M. DESPINS, ing.	
dessiné par/drawn by:		date:		no. de projet/project no.	date:
B. LAFORCE				R-052833.001	
révisions:		échelle/scale:		nom du fichier/file name	
0		AUCUN/NONE		E05/07	

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- 39 3#8 + 1#10 VERT C.27mmØ CPV / 3#8 + 1#10 GREEN C.27mmØ PVC
- 40 PUIITS DE TIRAGE PRÉFABRIQUÉ EN BÉTON ARMÉ DE DIMENSIONS APPROPRIÉES C/A COUVERCLE EN FONTE ET ANNEAU DE TIRAGE.
REINFORCED PREFAB CONCRETE PULL WELL PROVIDED WITH CAST COVER AND PULLING RING.
- 41 PUIITS DE TIRAGE TEMPORAIRE FOURNI PAR D'AUTRES.
TEMPORARY PULLING BOX BY OTHERS.
- 42 PUIITS DE TIRAGE TEMPORAIRE FOURNI PAR D'AUTRES.
TEMPORARY PULLING BOX BY OTHERS.
- 43 PUIITS DE TIRAGE TEMPORAIRE FOURNI PAR D'AUTRES.
TEMPORARY PULLING BOX BY OTHERS.
- 44 C.53mmØ CPV. / C.53mmØ PVC.
- 45 C.53mmØ CPV. / C.53mmØ PVC.
- 46 C.78mmØ CPV (COMMUNICATION). / C.78mmØ PVC (COMMUNICATION).
- 47 C.53mmØ CPV (COMMUNICATION). / C.53mmØ PVC (COMMUNICATION).
- 48 BOITE DE TIRAGE DE DIMENSIONS APPROPRIÉS POUR LE TIRAGE DES CÂBLES D'ALIMENTATION/COMMUNICATION DES REDRESSEURS "A", "B" ET "C".
PULL BOX WITH APPROPRIATE DIMENSION IN ORDER TO PULL THE FEEDING CABLES/COMMUNICATION OF THE RECTIFIER "A" "B" ET "C"
- 49 PUIITS DE TIRAGE TEMPORAIRE FOURNI PAR D'AUTRES.
TEMPORARY PULLING BOX BY OTHERS.
- 50 PUIITS DE TIRAGE TEMPORAIRE FOURNI PAR D'AUTRES.
TEMPORARY PULLING BOX BY OTHERS.
- 51 C.21mmØ EMT. / C.21mmØ EMT.
- 52 C.21mmØ EMT. / C.21mmØ EMT.
- 53 C.53mmØ CPV. / C.53mmØ PVC.
- 54 C.35mmØ EMT. / C.35mmØ EMT.
- 55 BOITE DE TIRAGE EN CPV 300 X 300 X 200 C/A CADRE ET TRAPPE D'ACCÈS RENFORCÉE EN FONTE DE 460mmØ.
PULL BOX PVC 300 X 300 X 200 C/W IRON CAST RING AND ACCESS COVER 460mmØ
- 56 PANNEAU #5R-P3-N-2 1000A. 600V. EXISTANT. FOURNIR ET INSTALLER 3 NOUVEAUX DISJONCTEURS 30A. 3P. (CUTLER-HAMMER #FB3030PL TRI-PAC C/A ACC. DE MONTAGE POUR PANNEAU "PANAFLEX) POUR LE RACCORDEMENT DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 1000A. 600V. #5R-P3-N-2. PROVIDE AND INSTALL 3 NEW BREAKER 30A. 3P. (CUTLER-HAMMER #FB3030PL TRI-PAC C/W CONN. KIT FOR "PANAFLEX" PANEL) FOR THE CATHODIC SYSTEM.
- 57 PANNEAU #5R-P1-N-3 120V. EXISTANT. UTILISER 1 DISJONCTEUR 15A. 1P. EXISTANT POUR LE RACCORDEMENT DU 120V. DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 120V. #5R-P1-N-3. USED EXISTING BREAKER 15A. 1P. FOR THE CATHODIC SYSTEM.
- 58 PANNEAU #9R-PP3-N-2 400A. 600V. EXISTANT. FOURNIR ET INSTALLER 1 NOUVEAU DISJONCTEUR 40A. 3P. (GE #THED136040) ET 1 NOUVEAU DISJONCTEUR 20A. 3P. (GE #THED136020) POUR LE RACCORDEMENT DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 400A. 600V. #9R-PP3-N-2. PROVIDE AND INSTALL 1 NEW BREAKER 40A. 3P. (GE #136040) AND 1 NEW BREAKER 20A. 3P. (GE #THED136020) FOR THE CATHODIC SYSTEM.
- 59 PANNEAU #9R-P1-N-1 120V. EXISTANT. UTILISER 1 DISJONCTEUR 15A. 1P. EXISTANT POUR LE RACCORDEMENT DU 120V. DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 120V. #9R-P1-N-1. USED EXISTING BREAKER 15A. 1P. FOR THE CATHODIC SYSTEM.





 Travaux publics et Services gouvernementaux Canada Direction générale des biens immobiliers Région du Québec	 Public Works and Government Services Canada Real Property branch Quebec region Canada	Projet/Project RECONSTRUCTION DES QUAIS 97 & 98 RECONSTRUCTION OF WHARVES 97 & 98		Titre du dessin/Drawing title: ELECTRICITÉ CONSTRUCTION ELECTRICITY CONSTRUCTION	
		conçu par/designed by: date:		approuvé par/approved by: date:	
		M. DESPINS, ing.		M. DESPINS, ing.	
		dessiné par/drawn by: date:		no. de projet/project no. date:	
B. LAFORCE		R-052833.001			
révisions: échelle/scale:		nom du fichier/file name			
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- PULL BOX PVC 300 X 300 X 200 C/W IRON CAST RING AND ACCESS COVER 460mmØ
- 56 PANNEAU #5R-P3-N-2 1000A. 600V. EXISTANT. FOURNIR ET INSTALLER 3 NOUVEAUX DISJONCTEURS 30A. 3P. (CUTLER-HAMMER #FB3030PL TRI-PAC C/A ACC. DE MONTAGE POUR PANNEAU "PANAFLEX") POUR LE RACCORDEMENT DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 1000A. 600V. #5R-P3-N-2. PROVIDE AND INSTALL 3 NEW BREAKER 30A. 3P. (CUTLER-HAMMER #FB3030PL TRI-PAC C/W CONN. KIT FOR "PANAFLEX" PANEL) FOR THE CATHODIC SYSTEM.
- 57 PANNEAU #5R-P1-N-3 120V. EXISTANT. UTILISER 1 DISJONCTEUR 15A. 1P. EXISTANT POUR LE RACCORDEMENT DU 120V. DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 120V. #5R-P1-N-3. USED EXISTING BREAKER 15A. 1P. FOR THE CATHODIC SYSTEM.
- 58 PANNEAU #9R-PP3-N-2 400A. 600V. EXISTANT. FOURNIR ET INSTALLER 1 NOUVEAU DISJONCTEUR 40A. 3P. (GE #THED136040) ET 1 NOUVEAU DISJONCTEUR 20A. 3P. (GE #THED136020) POUR LE RACCORDEMENT DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 400A. 600V. #9R-PP3-N-2. PROVIDE AND INSTALL 1 NEW BREAKER 40A. 3P. (GE #136040) AND 1 NEW BREAKER 20A. 3P. (GE #THED136020) FOR THE CATHODIC SYSTEM.
- 59 PANNEAU #9R-P1-N-1 120V. EXISTANT. UTILISER 1 DISJONCTEUR 15A. 1P. EXISTANT POUR LE RACCORDEMENT DU 120V. DE LA PROTECTION CATHODIQUE.
EXISTING PANEL 120V. #9R-P1-N-1. USED EXISTING BREAKER 15A. 1P. FOR THE CATHODIC SYSTEM.
- 60 GUÉRITE EXISTANTE À DÉBRANCHER ET PROLONGER LE CIRCUIT D'ALIMENTATION D'URGENCE 120V. JUSQU'AU 2 NOUVEAUX CABINETS DES BARRIÈRES MOTORISÉE.
EXISTING GATE TO DISMANTLE, EXTEND THE ELECTRICAL EMERGENCY CIRCUIT UP TO TWO NEW MOTORIZED GATE CABINET.
- 61 2#10 + 1#12 VERT, C.41MMØ CPV. / 2#10 + 1#12 GREEN, C.41MMØ PVC.
- 62 C. 41mmØ CPV/EMT (CONTRÔLE D'ACCÈS) JUSQU'À LA PIÈCE #9-202 / C.41mmØ CPV/EMT (ACCES CONTROL) TO ROOM #9-202.
- 63 POURVOIR UN SYSTÈME DE CONTRÔLE D'ACCÈS VOIR DEVIS / FILL A NEW ACCES CONTROL SYSTEM SEE SPECIFICATIONS.


Marc Despins
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2014/05/15

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		révisions: échelle/scale:		nom du fichier/file name	
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Quai de la Reine - Reconstruction of Wharves 97 and 98 - Price schedules

Bid Form - Revision N02 - May 14th 2014

Item	Description	Unit	Quantity	Unit price	Total cost
1	Mobilization and demobilization	global	1		
2	Worksite organization	global	1		
3	Demolition and excavation	global	1		
4	Granular materials				
4,1	Stone 20-200 mm	m ³	14 930		
4,2	Stone 20-200 mm for filling voids under relieving platform	ton	3 000		
4,3	Stone 50-25 mm	m ³	620		
4,4	Granular Foundation MG-56	m ³	2 013		
4,5	Granular Foundation MG-20	m ³	1 049		
5	Berm Stone 400-600 mm	m ³	5 262		
6	Quarry run stone 0-300 mm				
6,1	Quarry run stone for berm	m ³	13 458		
6,2	Quarry run stone between new and existing walls	global	1		
7	Geotextile Membrane	m ²	10 685		
8	Concrete				
8,1	Concrete slab on ground	m ³	2 576		
8,2	Concrete of the copewall of the pile-sheet pile and sheet piling sections (including the bollard bases)	m ³	577		
8,3	Pile filling concrete	m ³	1 344		
8,4	Concrete of type 1 and type 2 deadmen	m ³	174		
8,5	Concrete of the anchor wall of Wharf 98 (type 3)	m ³	13		
8,6	Concrete of the type 4 block	m ³	44		
8,7	Concrete of wharf 96 connection	global	1		
9	Piles	unit	71		
10	Rock sockets for piles	unit	19		
11	Steel sheet piles	unit	112,5		
12	Wailings	LM	54,3		
13	Tie rods				
13,1	Supply of drilled and inclined tie rods	LM	2 073		
13,2	Supply of horizontal tie rods	LM	1 239		
13,3	Supply of tie rods for bollards	LM	231		
13,4	Installation of drilled and inclined tie rods	unit	45		
13,5	Installation of horizontal tie rods	unit	39		
13,6	Installation of tie rods for bollards	unit	18		
14	Connections of tie rods to piles	unit	71		
15	Bituminous pavement	m ²	2 591		
16	Fenders				
16,1	Cylindrical fenders, anchors and plates of Wharf 97	unit	19		
16,2	Trapezoidal fenders, anchors and plates of Wharves 97-96	unit	2		
16,3	Anchors and plates of Wharf 98	unit	6		
17	Bollards and cleats				
17,1	Supply of painted bollards	unit	10		
17,2	Installation of bollards	unit	8		
17,3	Supply and installation of cleats	unit	3		
18	Ladders	unit	10		
19	Protection bollards				
19,1	Supply of protection bollards for slabs	unit	13		
19,2	Installation of protection bollards on slabs	unit	7		
19,3	Supply of protection bollards on pavement	unit	7		
19,4	Installation of protection bollards on pavement	unit	3		
20	Pedestrian gangway	global	1		
21	Floating dock	global	1		
22	New hoisting system (West wall of pit)	global	1		
23	Lifting system for gangway	global	1		
24	Guardrails				
24,1	Guardrails of the pit	LM	20		
24,2	Guardrails of the ramp	LM	6,1		
25	Safety net	LM	52		
26	Block 97A	global	1		
27	Block 97B	unit	2		
28	Block 98	global	1		
29	Landing pad lights	global	1		
30	Stormceptor STC-750 treatment manholes	unit	4		
31	Precast concrete manholes	unit	4		
32	Storm sewer pipes	global	1		
33	Potable water pipes	global	1		
34	Gutter grates	global	1		
35	Water pipe for service station	global	1		
36	Supply and installation of cathodic protection elements	global	1		
37	Underwater excavation				
37,1	Clean soil to the berm	ton	50		
37,2	Inferior non contaminated soil in A	ton	100		
37,3	Contaminated soils A-B	ton	400		
37,4	Contaminated soils B-C	ton	400		
37,5	Contaminated soils higher then C	ton	100		
37,6	Debris and large aggregates	ton	30		
38	Land excavation				
38,1	Clean soil to the berm	ton	100		
38,2	Inferior non contaminated soil in A	ton	1 000		
38,3	Contaminated soils A-B	ton	1 700		
38,4	Contaminated soils B-C	ton	1 500		
38,5	Contaminated soils higher then C	ton	400		
38,6	Debris and large aggregates	ton	50		
39	Protection frame	unit	2		
40	Rising barrier	global	1		
TOTAL					