

Parks Canada Agency  
Rehabilitation Lachine Canal Walls  
Repair and replacement of crowning walls  
(Area H.4 and 12 – Reach No. 4)  
Project N° CL(1455-13)  
Addendum n° 06

THIS ADDENDUM COMPLETES, MODIFIES OR ELIMINATES CERTAIN ELEMENTS OF THE TENDER DOCUMENTS, WHICH THE ADDENDUM REFERS TO. IT IS AN INTEGRAL PART OF THE TENDER DOCUMENTS.

**MODIFICATIONS ON PLANS AND SPECIFICATIONS**

The current precisions are provided, following questions received from contractors during the site visit, and other written questions received.

**1. SPECIFICATIONS**

**1.1 Replacement of section 01 29 00 – Payment Procedure**

The section 01 29 00 – *Payment* revision 03 is cancelled and replace by the section 01 29 00 *Payment procedures* revision 04. See the section appended to this addendum.

**1.2 Replacement of section 06 05 73 – Wood Treatment**

The section 06 05 73 – *Wood treatment* revision 00 is cancelled and replace by the section 06 05 73 *Wood Treatment* revision 01. See the section appended to this addendum.

**2. PRECISIONS**

**2.1 Precision about item 4.3 – Timber cribs**

The 150 mm of sediments recovered in the first layer of the Canal is included in this payment item.

**2.2 Work mobilization located east of Côte St-Paul footbridge**

The mobilization section located east of the bridge is only available for exploration and characterization work. See section Summary of Work - Deadlines (Addendum # 4).

The part of timber crib and wall on the East side of the bridge will not be accessible until the end of October 2020 (October 26 2020).

N/Ref. : CL(1455-13)

Stantec Experts-Conseils ltée.

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## Specifications

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**Part 1            General**

**1.1                NOT USED**

.1            Not Used.

**Part 2            Explanation of the Bid Form Prices**

**2.1                Item 1. – Worksite Organization, Government Representative’s Site Office,  
Environment, and General Items**

.1            Item 1.1 – Construction Facilities

.1            Payment item 1.1 of the *Bid Form* is a fixed lump sum amount to compensate all necessary expenses incurred in the execution of the Work as well as any other expenses not included in the other *Bid Form* items, in accordance with the requirements of the specifications.

.2            The amount includes all that is described in Section 01 52 00 – *Construction Facilities*, such as, but is not limited to, the following:

- .1            Special/before Work mobilization and demobilization for the environmental characterization with twenty-five (25) exploration wells for additional sampling of contaminated soils at the start of the Project (including a characterization plan, exploration wells, sampling by a laboratory professional, investigation plan and certification), deforestation and surveys;
- .2            Electricity, water, site lighting and snow removal of construction and access areas;
- .3            Construction site offices, furnishings, telephone and related services (internet, fax, 11x17 photocopying machine with a color scanner, etc.), microwave and small refrigerator (9 cubic feet minimum), cold and hot water dispenser, including drinking water, heating and air conditioning of the site offices;
- .4            Access roads including the necessary deforestation, clearing namely the removal of scrub, vines, dead wood, trees and shrubs whose trunk diameter is less than 50 mm (measured from the diameter at chest height), the removal of all brush, roots and bushes at the first 500 mm and a depth of 250 mm of the junction of the crowning walls and seat as indicated on the drawings (for estimation purposes, a cleaning of approximately 50% of the length of the wall to be repaired or replaced should be considered), the removal of fences and vines on the edge of the crowning wall, additional characterization of five (5) consolidated soil piles from wall repair without overlay work and timber cribs replacement, the moving, the storage and replacing of street furniture (tables, benches, garbage cans, etc.), sanitary facilities, rigid site fencing (minimum height of 2440 mm), and all required displacements according to the scheduling of works, working methods, detours, deviations, etc. and confining of the mobilization premises in accordance with the

requirements of the specifications and drawings, and as directed by the Government Representative. In addition, all required measures related to the protection of the cycle or polyvalent path during the works in areas where the cycle path is open to the public, including temporary construction fencing at the locations shown on the drawings and the signalers (at all times) for all crossings and entrances.

- .5 Removal and repositioning of anchors and metal rings.
- .6 Traffic maintenance and temporary signage such as, but is not limited to, the following:
  - .1 Work areas access mobilization, maintenance and dismantling;
  - .2 Site signage and maintenance;
  - .3 Maintenance of access to properties;
  - .4 Signalers, when needed, for site access and crossings of cycle or polyvalent path open during Work;
  - .5 Signage and traffic lane maintenance including requested inspections;
  - .6 Existing signage modification and rehabilitation at the end of Work;
  - .7 Temporary signage bilingualism.
- .7 Establishment and maintenance of a detours of cycle;
- .8 Tree pruning work in accordance with the requirements of specifications such as, but is not limited to, the following:
  - .1 Preparation, presentation, and correction of the Work Plan;
  - .2 The mobilization of labour, tools, and equipment required to carry out the work;
  - .3 Supply, transport, handling, maintenance, and removal of access required for pruning works;
  - .4 Pruning of trees in accordance with the requirements of Section 32 01 90.23 – *Pruning*;
  - .5 Loading, transporting and disposing of debris to a site in accordance with current policies;
  - .6 Cleaning at the end of the works;
- .9 Other costs related to the specific requirements of traffic maintenance and **navigational corridor encroachment**.
- .10 The maintenance of the worksite and of its access routes.
- .11 The required coordination with the City of Montreal and other stakeholders, including obtaining all necessary permits to carry out the Work.
- .12 All that is required in the following sections and is not directly attributed or related to one of the other items of the *Bid Form*:

Section 01 11 00      Summary of Work  
Section 01 31 19      Project Meetings

Section 01 32 16.07	Construction Progress Schedule – Bar (Gantt) Chart
Section 01 33 00	Submittal Procedures
Section 01 35 29.06	Health and Safety Requirements
Section 01 52 00	Construction Facilities
Section 01 56 00	Temporary Barriers and Enclosures
Section 01 73 00	Execution
Section 01 74 00	Cleaning
Section 01 74 19	Waste Management and Disposal
Section 01 77 00	Closeout Procedures
Section 07 78 00	Closeout Submittals
Section 32 01 90.23	Pruning
Section 32 92 23	Sodding
G2030	Pedestrian paving

- .13 All costs associated with surveying and staking the works and all other site take-offs and measurements that are not allocated to any of the other items of the *Bid Form*.
- .14 The costs of providing a security guard or other means of supervision for the site for all the duration of the contract (if required).
- .15 Rental costs of land and/or space for the storage of materials.
- .16 The protection of existing public utilities within the work site during construction. If the Contractor damages these installations during his work, he must replace them at his expense.
- .17 All fees pertaining to the supply of water and electricity for the duration of the Work.
- .18 Expenses for all means taken to avoid damage to earthworks, paving, etc.
- .19 The rehabilitation of the premises:
  - .1 All work to restore the temporary sites used (access road, storage area, etc.) to their natural state;
  - .2 All work to restore street furniture (benches, tables, garbage cans, etc.) to their original condition;
  - .3 All work to restore vegetation by grassing of sites damaged by work;
  - .4 All work permitting the repair of all other damages the Contractor caused to the site of the works, to the public or private property affected by its works.
- .20 The Contractor shall repair all damage caused in the performance of its work to the satisfaction of the Owners concerned and that of the Government Representative. The work site must be returned in a similar or better condition to that existing before the work begins.

- .21 The Contractor must complete a photo and video survey at the beginning of the project and submit a PDF report of these statements along with the site condition notes and comments.
- .22 The Contractor shall provide the list of shop drawings required in the plans and specifications and update it.
- .3 The submitted price is paid as shown below:
  - .1 A portion equal to 3% of the total amount bid for this item will be paid for the special mobilization, only once these started.
  - .2 A portion equal to 17% of the total amount bid for this item will be paid with the first progress claim, provided that the work has begun. No payment of this item will be made before official and permanent mobilization for Work.
  - .3 Other progress payments under this item will be paid to a percentage consistent with the general progress of Work for each progress claim period except for the last payment which shall be paid to an amount up to 85% of the general progress of the work.
  - .4 The last progress claim equivalent to 15% shall be paid with the payment emitted during the "*Substantial Performance of the Work*".
- .2 Item 1.2 – Environmental Protection Measures
  - .1 Payment item 1.2 of *Bid Form* is a fixed lump sum amount to compensate all necessary expenses incurred for measures to protect the environment in accordance with the requirements of the drawings and specifications.
  - .2 The amount includes, but is not limited to, the following:
    - .1 All that is described in Section 01 35 43 – *Environmental Procedures* such as the preparation, presentation, and implementation of the environmental protection plan;
    - .2 The preparation, presentation, and implementation of:
      - .1 The environmental protection plan (PPE)
      - .2 The emergency spill plan;
      - .3 The construction facilities location plan location;
      - .4 The work zone plans;
      - .5 The air pollution prevention plan;
      - .6 The contamination prevention plan;
      - .7 The wastewater management plan;
      - .8 The plan for the designation and protection of wetlands and historical, archaeological, cultural, and biological resources;
      - .9 The preparation, presentation, and implementation of a plan to protect the historical and heritage character of the site.
    - .3 Vegetation protection measures (trees, shrubs, plants, river bed and banks, etc.);

- .4 Temporary facilities for pollution prevention;
- .5 The installation of the sediment barrier includes, but is not limited to, the following:
  - .1 The preparation, presentation, and correction of the Work Plan;
  - .2 Mobilization of labor, tools and equipment required for the execution of the work;
  - .3 Supply including geotextile, transportation, handling, warehousing and placing;
  - .4 Servicing and maintenance of barriers for the duration of the work;
  - .5 Dismantling of the sediment barrier;
- .6 Cleaning of the premises at the end of work;
- .7 Any incidental expense and coordination
- .3 The submitted price is paid as shown below:
  - .1 A portion equal to 20 % of the total amount bid for this item will be paid with the first progress claim, provided that the work has begun, except for the work included with the special/before Work mobilization. No payment of this item will be made before official and permanent mobilization for Work.
  - .2 Other progress payments under this heading shall be paid at each count at a percentage consistent with that of the overall progress of the work for this statement, except for the last installment to be paid up to 85% of the progress. general works.  
  
The last 15% will be paid with the payment issued upon the issuance of the "*Substantial Performance of the Work*"
- .3 Item 1.3 – Turbidity curtain (confinement)
  - .1 Payment item 1.3 of the *Bid Form* is per linear metre (Lin. m.) for all costs incurred for the supply and the installation of a turbidity curtain for the duration of the work in accordance with the requirements of the drawings and specifications. The paid length is that of the replacement or repair of the crowning wall, even if the curtain length exceeds it.
  - .2 **The confinement curtain must comply with the requirements of Transport Canada. It must be either yellow or orange. It must be marked with yellow reflector stripes measuring 10 cm in width by 30 cm in length, at a maximum spacing of 1 metre.**
  - .3 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction, of the Work Plan and shop drawings;
    - .2 Mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The supply, transportation, handling, storage, and operation;
    - .4 Maintenance and retention of the curtain for the duration of the work;
    - .5 Dismantling of the curtain;
    - .6 Cleaning of premises at the end of work;

- .7 Any incidental expense and coordination.
  
- .4 The submitted price is paid as shown below:
  - .1 50% of the price after the installation of the Turbidity curtain (confinement) to the satisfaction of the Government Representative;
  - .2 50% of the price after the evacuation of all materials composing the Turbidity curtain (confinement) and cleaning of the premises, to the satisfaction of the Government Representative.
  
- .4 Item 1.4 – Removal, Painting and Repositioning of Guardrails
  - .1 Payment item 1.4 of the *Bid Form* is priced per linear metre (Lin. m.) for the removal, the surface preparation, painting and repositioning of guardrails at the new approved positioning/location (see drawings). Plan a survey of the existing, in accordance with requirements of the drawings and specifications (including the door(s) of the existing railings).
  - .2 Guardrail posts to be removed, repainted and reinstalled. The posts of the railing are cast iron. **Note that the existing painting of the railings contains lead.** The Contractor must adjust its price to consider CNESST's requirements for lead exposure during pickling.
  - .3 Surface preparation and removal of paint containing lead can not be carried out within the perimeter of the site. This work must be done in the factory.
  - .4 Rails shall be removed and scrapped. The Contractor must supply and install new rails of the same diameter as the existing ones. The new rails must be galvanized and painted according to the requirements of the drawings and specifications and be of a minimum length of 4.267 metres.
  - .5 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of shop drawings of the positioning of posts and rails (including details of installation and leveling of rails and posts), the painting procedure, samples and data sheets required;
    - .2 Survey and photographic record of existing guardrails;
    - .3 The mobilization of labor, tools, equipment and hardware required for the execution of the work;
    - .4 The supply, transport, painting and installation of new rails;
    - .5 Transport to Parks Canada of posts that will not be used for the Work and that are in good condition; The supply, handling, transport and implementation of all materials (anchors, grout, paint, shims, anti-vandal screws, etc.).
    - .6 The supply, handling, transport and implementation of all materials (anchors, grout, paint, shims, anti-vandal screws, etc.);
    - .7 All costs incurred for the preparation of surfaces;
    - .8 Leveling railings, shims and adjustments, if necessary, with cement grout;



- .9 If the guardrails are located on an existing wall, the price includes the removal of existing anchors to a minimum depth of 50 mm, the filling of the holes with a repair mortar and the installation of new anchors;
  - .10 Paint remodeling at the building site of railing elements and application of paint to the exposed portion of the anchor bolts after final tightening.
  - .11 In the event of damage, immediately restore the affected items and at the expense of the Contractor;
  - .12 Bore diameter (factory) of the openings of the poles for the passage of the rails to allow their installations. Perform factory tests to validate the passage of the slats in the poles before delivering them to the site;
  - .13 Any incidental expenses and coordination.
- .5 Item 1.5 – Clearing
- .1 Payment item 1.5.1 to 1.5.3 – Deforestation of stumps and trees with diameters superior to 50 mm (measured from the diameter at chest height)
    - .1 Payment items 1.5.1 to 1.5.3 of the *Bid Form* are priced per unit for all the costs incurred for the deforestation of trees according to their dimensions, in accordance with the requirements of the specification annex.
    - .2 The Payment Item 1.6.3 is a unit price for all costs incurred for the removal of stumps located outside the excavation area, as the complete removal of the stumps inside the excavation area is included at item 1.9 "*Excavations and stockpiling*".
    - .3 For trees outside of the excavation area, the Contractor has to cut the trees and grub the stumps 600 mm under the natural ground line.
    - .4 For trees located in the excavation area, the complete stump removing is included at item "*Excavations and stockpiling*".
    - .5 Some trees are already cut in the zone outside of the excavation area. The Contractor has to grub the stumps 600 mm under the natural ground line.
    - .6 The price includes, but is not limited to, the following:
      - .1 Preparation, presentation, and correction of the Work Plan;
      - .2 The mobilization of labour, tools, and equipment required to carry out the work;
      - .3 Supply, transport, handling, maintenance, and removal of access required for deforestation works;
      - .4 The clearing of areas identified in the specification annex;
      - .5 Loading, transporting and disposing of debris to a site in accordance with current policies;
      - .6 Cleaning at the end of the works;
      - .7 Any incidental expenses and coordination.
- .6 Item 1.6 - Platforms and Access System for Crowning Walls
- .1 Payment items 1.6.1 and 1.6.2 of the Schedule of Prices is priced per linear metre (m. Lin.) of wall intervention for the supply, installation for the duration of the work or removal of the access platforms and system in accordance with the

requirements of drawings and specifications. The unit price for the platforms and access system (in linear meter) includes the equivalent of the intervention length, regardless of the number of vertical displacements required. Only the equivalent of the intervention length will be paid. If the Contractor puts two platforms at two different heights on the same repair section of 1 m, only one platform of 1 m will be paid and not 2 m. Access platforms and systems must be watertight at the level of their contact with the existing substrate. Foresee an existing irregular substrate as indicated on the plans, on the photos and 3D cross sections.

- .2 Price includes, but is not limited to, the following:
  - .1 The preparation, presentation, and correction of shop drawings and design calculations;
  - .2 Mobilization of labor, tools and equipment required for the execution of the work;
  - .3 The supply, transport, handling, installation, maintenance and removal of platforms and access systems (including geotextile et anti-dust screen) for the complete duration of Work;
  - .4 Implementation and removal under water level if necessary;
  - .5 Any incidental expenses and coordination.
- .3 The submitted price is paid as shown below for each item:
  - .1 50% of the price after the installation of the platform to the satisfaction of the Government Representative;
  - .2 50% of the price after the evacuation of all materials composing the platform, out of the work site.
- .7 Item 1.7 – Excavations and stockpiling
  - .1 Payment item 1.7 of the *Bid Form* is priced per cubic metre (m<sup>3</sup>) for excavated and stockpiled backfilled material. The volume shall be calculated in accordance with the section and profile of excavation accepted by the Government Representative and the Contractor excavation survey in accordance with the requirements of the drawings and specifications.
  - .2 Price includes, but is not limited to, the following:
    - .1 Mobilization of labor, tools and equipment required for the execution of the work;
    - .2 The preparation, presentation, and correction of the sections and typical soil excavation profile for acceptance, the excavation, stockpiling and disposition procedure, and the shop drawing required for the job execution;
    - .3 The georeferenced excavation survey of the existing in accordance with the approved section and profile and transmission to the Government Representative;
    - .4 Complete removal and disposition of stumps and roots in excavation areas (includes removal and off-site disposal of all stumps in this area);
    - .5 The identified excavation required for not damaging the existing dressed stones;

- .6 Design, mobilization, supply and installation of retaining systems ir required in the chosen method;
- .7 Drying and drainage of the excavation bottom;
- .8 Excavation, loading, transport and stockpiling of the backfilled material (be sure to implement environmental requirements for soil storage and required protection system.);
- .9 Compaction of bottom material before installation of any new backfill;
- .10 Stripping, loading, transport and storage of topsoil for characterization prior to disposal;
- .11 Excavation of stones in the Canal in front of timber cribs;
- .12 Any type of excavation required for the work;
- .13 Any incidental expenses and coordination.

.8 Item 1.8 - Disposal of Contaminated Soil

.1 Items 1.8.1 to 1.8.5 – Range <A, A-B, B-C, C-RESC and >RESC

- .1 Payment items 1.10.1 to 1.10.5 of the *Tender Form* are priced per tonnes (t) of evacuated soil for the disposal of different types of contaminated soils range <A, A-B, B-C, C-RESC and >RESC in accordance with the requirements of the specifications and drawings.
- .2 The price includes, but is not limited to, the following:
  - .1 Disposal of contaminated soils of <A, A-B, B-C, C-RESC and >RESC contamination ranges, according to the types of contaminant and parameters described in Section 01 52 00 – *Construction Facilities*, Subsection 1.15 – *Contaminated Soils* and in the site characterization appendices. This range is determined according to the instructions of the Government Representative.
  - .2 Loading, transport off-site and treatment as prescribed by Section 01 74 19 – *Waste Management and Disposal* and Section 01 35 13.43 – *Special Project Procedures for Contaminated Sites*;
  - .3 Clean-up;
  - .4 Any incidental expenses and coordination.
- .3 Item for disposal of contaminated soils <A includes the loading and off-site disposal (to sites accepting this type of material) of pebbles and/or concrete with a diameter equal to or greater than 300 mm present in the embankments and inside the existing timber cribs and those with a diameter equal to or greater than 150 mm in the last layer of 300 mm. For estimation purposes, provide for 300 tonnes of material to be sorted and disposed of. This does not include the concrete of the walls to be demolished, but only the existing materials present in the backfill.

.9 Item 1.9 – Topsoil

- .1 Payment item 1.9 of the *Bid Form* is priced per square metre (m<sup>2</sup>), based on the area covered in accordance with the requirements of the drawings and specifications.
- .2 Price includes, but is not limited to, the following:

- .1 The preparation of the ground for the placement of the topsoil;
  - .2 The supply of the material, loading, transport, spreading, leveling, stripping, removal of woody debris and waste, and any amendments necessary to make the material in accordance with drawings and specifications;
  - .3 It is noted that only the theoretical sections indicated in the drawings and quantities counted in the *Bid Form* as reinforced grass are included in this payment item. Costs related to all other areas damaged by the work are considered as miscellaneous expenses and are included in the price of the restoration of the site;
  - .4 Any incidental expenses and coordination.
- .10 Item 1.13 – Sodding with Turf Grass
- .1 Payment item 1.10 of the *Bid Form* is priced per square metre (m<sup>2</sup>) for sodding with turf grass, in accordance with the requirements of the drawings and specifications.
  - .2 Measure sodding with turf grass per square metre of sodded area.
  - .3 Price includes, but is not limited to, the following:
    - .1 The supply, implementation of materials in accordance with the plans and directives of the Government Representative;
    - .2 Recovery of sodding of portions of covered surfaces by less than 75% shoot height 150 mm;
    - .3 Protection and maintenance of turf;
    - .4 Cleaning of premises;
    - .5 First lawn mowing;
    - .6 Costs related to all other areas damaged by the work are considered miscellaneous and are included in the price of the restoration of the site.
    - .7 Any incidental expense and coordination.
  - .4 It should be noted that only the areas corresponding to the topsoil surface of item 1.9 are included in this item of payment. Costs related to the installation of sodding with turf grass to any other surfaces damaged by the work are considered as miscellaneous expenses and are included in the price of the restoration of the places.
  - .5 The submitted price is paid as shown below:
    - .1 75% of the price after initial sodding to the satisfaction of the Government Representative;
    - .2 25% of the price after the first lawn mowing to the satisfaction of the Government Representative.
- .11 Item 1.11.1 – Decommissioning of chamber
- .1 Payment item 1.11.1 of the *Bid Form* is a fixed lump sum amount for the decommissioning of Hydro-Quebec chamber, in accordance with the drawings and specifications.
  - .2 The price includes, but is not limited to, the following:

- .1 Exploratory excavation work to determine the location of the slab above the rooms (excavation and stacking). No traffic is allowed over the slab;
- .2 The pumping of stagnant water present
- .3 Partial demolition of the walls and ceiling slab reinforced concrete chambers (perform the demolition of a height of one meter under the finished floor).
- .3 The bid price is paid as follows:
  - .1 100% of the amount after completion of the complete decommissioning of the Hydro-Quebec chamber to the satisfaction of the Departmental Representative.
- .12 Item 1.11.2 – Concrete filling without shrinkage
  - .1 Payment item 1.15.2 of the *Bid Form* is a price per cubic meter (m<sup>3</sup>) of concrete for the filling of the valve chambers including pipes and former water intake, in accordance with the drawings and specifications.
  - .2 The price includes, but is not limited to, the following:
    - .1 Supply and installation of backfill concrete without shrinkage in accordance with City of Montréal Specification 6VM-30 for the interior of the old water intake and the Hydro-Quebec chamber;
    - .2 The supply and installation of a Type 1 borrowing materials, MG-20 (this backfill is payable at item Type 1 borrowing materials, MG-20);
  - .3 The bid price is paid as follows:
    - .1 100% of the amount after the completion of the complete concreting of the old water intake and the Hydro-Quebec chamber to the satisfaction of the Departmental Representative.

## 2.2 Item 2. – Replacement of the Crowning Walls

- .1 Item 2.1 –Demolition and/or removal of collapsed walls
  - .1 Payment item 2.1 of the *Bid Form* is a price per cubic metre (m<sup>3</sup>) of demolished concrete, in accordance with the requirements of the drawings and specifications and drawings.
  - .2 The price includes, but is not limited to, the following:
    - .1 Preparation, presentation, and correction of the demolition procedure and the Work Plan regarding the demolition of the wall;
    - .2 The mobilization of labour, tools, and equipment required to carry out the work;
    - .3 All required saw cuts. Including the saw cuts in the lower part of the Canal side wall to prevent breakage of the foundations during the demolition as well as the complete sawing of the walls between the different types of walls (old, type 2, type 2A, type 4, etc.);
    - .4 The preparation, presentation, and correction of the section and typical profile of the existing concrete demolition for approval;

- .5 The demolition of defective and sound concrete as directed by the Government Representative including the single base for guardrail post;
  - .6 The survey markers removal and the production of a list of the removed markers;
  - .7 Cleaning, surface preparation and disposition of debris;
  - .8 Cleaning the reinforcing steel to be retained;
  - .9 Cleaning of the concrete substrate;
  - .10 The collection and treatment of demolition materials as prescribed by Section 01 74 19 – *Waste Management and Disposal*;
  - .11 Any incidental expenses and coordination.
- .2 Item 2.2 – Reinforcing Galvanized Steel
- .1 Payment item 2.2 of the *Bid Form* is a price per kilogram (kg) of steel, based on the quantities placed in the formwork, in accordance with the requirements of the drawings and specifications.
  - .2 The price includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of the Work Plan, the shop drawings and the slip concerning the laying of steel bars;
    - .2 The mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The supply of reinforcing bars and the shaping thereof;
    - .4 Galvanizing when stipulated in plans and specifications;
    - .5 On-site coordination and adjustments required for the installation of concrete castings and post-wall drilling (bollards, ladders, drains, guardrail anchors, etc.);
    - .6 Field cuts and adjustments;
    - .7 The laying of reinforcing steel required;
    - .8 The rebar installation confirmation table and a revision of the installation slip;
    - .9 Reinforcing bars of the sonotubes for guardrail to be replaced;
    - .10 Any incidental expenses and coordination.
- .3 Item 2.3 – Cast-in-Place Concrete
- .1 Payment item 2.3 of the *Bid Form* is a price per cubic metre (m<sup>3</sup>) of wall concrete, the quantities are calculated according to the theoretical dimensions, in accordance with the specifications of the drawings and specifications. For estimation purposes, provide irregular flange formwork over the entire length of the wall replacement intervention - (Type 2 and 4 wall). For estimation purposes, provide 100 m<sup>2</sup> of irregular formwork for the crevices and holes in the upper seats, as indicated on the drawings. **The crowning walls are limited to 10 linear meters maximum by casting.**
  - .2 These prices include, but are not limited to, the following:

- .1 The preparation, presentation, and correction, if required, of shop drawings, the concreting procedure, the descriptions of the mixtures and the technical data sheets required;
- .2 Mobilization of labor, tools and equipment required for the execution of the work;
- .3 Supply, installation and dismantling of formwork;
- .4 Supply and installation of chamfers;
- .5 Supply and installation of 20 mm chamfers for joints;
- .6 The supply and application of mold release agent;
- .7 Supply and installation of formwork ties;
- .8 Control joints (asphaltic board, thermoplastic expanding sheath, self-adhesive membrane for joints in accordance with the 3702 standard of Chapter 3 of Volume VII - Matériaux de la collection Normes – Ouvrages routiers du Ministère des Transports)
- .9 The supply and application of repair mortar to the location of the formwork ties;
- .10 The anchors, used to replace the formwork tie-rods, used to hold the formwork in place and required for the placement of concrete on existing concrete.
- .11 Supply and installation of steel wire;
- .12 The supply, transport, handling and placing of the drain 150 mm x 150 mm;
- .13 The supply, transport, handling and installation of the transition details, control joints including 20M anchors and 2 self-adhesive membranes as shown in the drawings;
- .14 The supply, transport, handling and placing of the steel components incorporated in the concrete, as shown in the drawings;
- .15 Treatment of substrate before concreting;
- .16 Supply, installation, vibration, finishing, wet curing of concrete;
- .17 Cleaning of concrete surfaces adjacent to the concreting area;
- .18 At the end of the work, off-site evacuation of the formwork materials and correction of defective repairs;
- .19 Concrete finishing, tests and register;
- .20 Treatment of surplus materials in accordance with Section 01 74 19 – *Waste Management and Disposal*;
- .21 The preparation, presentation and correction of the section and typical profile of cast-in-place concrete for approval;
- .22 The preparation, supply and repair of cracks exceeding the specific requirements of the specifications;
- .23 Concrete of the sonotubes for guardrail to be replaced;
- .24 Provide for the preparation, supply and treatment of specific cracks (other than that of the previous article) for the purpose of injecting 30

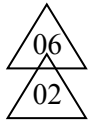


meters in length. This processing length is conditional upon approval by the Governmental Representative;

- .25 Any incidental expenses and coordination.
- .3 Casting of the concrete footings is included for followings items:
  - .1 Wall section above the timber cribs or the retaining wall;
  - .2 Type 2A crowning wall repair;
  - .3 Replacement of the crowning walls types 2 and 4.
- .4 Position 2.4 - Bollards
  - .1 Payment item 2.4 of the *Bid Form* is unit priced for the removal, surface preparation, painting and replacing of the bollards in accordance with the requirements of the drawings and specifications.
  - .2 **Note that the existing bollard paint contain lead.** The Contractor must adapt his price to take into account the requirement of CNESST in terms of lead exposition during stripping.
  - .3 The surface preparation and the paint stripping containing lead can't be done in the field work zone. The works must be done inside a total confinement enclosure or a factory.
  - .4 Price includes, but is not limited to, the following:
    - .1 The survey of the bollard localisation, the preparation, presentation, and correction, if required, of shop drawings, the paint stripping procedure containing lead, the painting procedure, samples and technical data sheets required.
    - .2 Photographic survey of existing bollards;
    - .3 Specific bollard identification;
    - .4 Mobilization of labor, tools and equipment required for the execution of the work;
    - .5 Removal, transportation, handling, storage of bollards;
    - .6 The supply, handling, transport and use of materials;
    - .7 All costs incurred in the preparation of surfaces;
    - .8 The lead paint removal wastes disposition;
    - .9 Painting of the bollards;
    - .10 Repositioning bollards, including new anchors of the same size as the existing one (same localisation them existing);
    - .11 In the event of damage, immediately repair the affected items and at the Contractor's expense;
    - .12 Total confinement enclosure
    - .13 Soil clearance around the bollards
    - .14 All costs related to the work in section 35 59 29 - *Mooring equipment*;
    - .15 Any incidental expenses and coordination.
  - .5 The submitted price is paid as indicated below:
    - .1 100% of the price after the removal of the Bollards, to the satisfaction of the Government Representative.







.5 Item 2.5 – Rungs

- .1 Payment item 2.5 of the *Bid Form* is a unit price for the establishment of a series of rungs in accordance with the requirements of the drawings and specifications.
- .2 This item is composed of the equivalent number of steps (rows) in the existing section. It includes the holes on each of the steps (rows) and on the top of the wall and the smooth galvanised steel, as described in the drawings. The price also includes the chemical anchors required for installation and all incidental expenses.
- .3 The existing section is composed of four (4) steps on the front face and one on the top. In case of variation, the rungs will be paid proportionally.
- .4 Price includes, but is not limited to, the following:
  - .1 The georeferenced surveys, the preparation, the presentation, and the correction of shop drawings, samples, and technical data sheets. Provide a DWG, PDF and EXCEL spreadsheet with identification, location and any other relevant information on the height of the rows, numbers, spaces between them, type, shape and identification section;
  - .2 Mobilization of labor, tools and equipment required for the execution of the work;
  - .3 The supply, transport, handling and setting of the echelons, such as the existing ones;
  - .4 Any incidental expenses and coordination.

.6 Item 2.6 – Type 1 Borrowing Materials, MG-20

- .1 Payment item 2.6 of the *Bid Form* is priced per tonne (t) for the borrow materials in accordance with the requirements of the drawings and specifications.
- .2 This item is related to materials that replace excavated materials. No reuse of materials is expected for the crowning wall replacement on this Contract.
- .3 Price includes, but is not limited to, the following:
  - .1 Transportation of borrow materials to the site;
  - .2 The supply and installation of borrow materials in accordance with the drawings, specifications, and instructions of the Government Representative;
  - ~~.3 The supply and installation of an impermeable membrane for the dimensions shown on the drawings;~~
  - .4 Compaction, tests and register;
  - .5 Cleaning of premises;
  - .6 Any incidental expenses and coordination.



.7 Item 2.7 - Perforated Drain 150 mm and Geotextile, PVC (Type 1) or PVC COEX (Type 1) or PE (Type 2), 180 kPa min.

- .1 Payment item 2.7 of the *Bid Form* is priced per linear metre of replaced concrete wall (Lin. m.) for the perforated drain in accordance with the requirements of the drawings and specifications including deviation lengths for bollards and keys. Thus 1 meter of wall replacement intervention is payable even if the drain has a

- deflection of 1.2 meters. Only the replacement length of walls is payable for this item.
- .2 The drainage system to install behind the crowning wall must have a diameter of 150 mm.
  - .3 Price includes, but is not limited to, the following:
    - .1 The supply of materials, the installation of drains including the installation of the geotextile, the preparation of the foundation, the clear stone support cushions the self-adhesive membrane on all the length of the wall, the connection of the elements and all accessories required for the installation such as joints between the various sections;
    - .2 The execution of the slope needed for drainage;
    - .3 Cleaning of premises;
    - .4 Any incidental expenses and coordination.
  - .8 Item 2.8 – Concrete support pad
    - .1 The price at item 2.8 of the Schedule of Prices is a per cubic meter (m<sup>3</sup>) price for backfill, in accordance with the plans and specifications as directed by the Departmental Representative.
    - .2 The concrete for the support pad is a pumpable concrete with a minimum capacity of 20 MPa with an air-entraining admixture;
    - .3 Price includes, but is not limited to, the following:
      - .1 The preparation, presentation, and correction, if required, of shop drawings, the concreting procedure, the descriptions of the mixtures and the technical data sheets required;
      - .2 Supply, installation and dismantling of formwork of a variable height required for the works;
      - .3 Transportation of support pad concrete to the site;
      - .4 Purchase and placement of concrete support pad according to plans and specifications;
      - .5 Concrete needed to clog up out of service ducts;
      - .6 Treatment of surplus materials in accordance with the requirements of Section 01 74 21 – *Construction / Demolition Waste Management and Disposal*;
      - .7 Cleaning of the premises;
      - .8 Any incidental expenses.

## 2.3 Item 3. – Repair of the Crowning Wall Without Overlay

- .1 Item 3.1 – Concrete Demolition – Crowning Wall
  - .1 Payment item 3.1 of the *Bid Form* is per cubic meter (m<sup>3</sup>) of concrete demolished, in accordance with the approved theoretical section as provided to the requirements of the drawings and specifications.
  - .2 The amount includes, but is not limited to, the following:

- .1 The preparation, presentation and correction of the demolition procedure and of the Work Plan concerning the wall demolition;
  - .2 The mobilization of labor, tools and equipment required for carrying out the work;
  - .3 The required saw cuts, including the saw cuts at the bottom of the wall on the Canal side to avoid damages to the seats during wall demolition, the sawing and demolition of the crevice surfaces as indicated on the drawings and the complete sawing of walls between the different types of walls (old, type 2, type 2A, type 4, etc.);
  - .4 The preparation, presentation, and correction of the section and typical profile of the existing concrete demolition for approval;
  - .5 The demolition of defective and sound concrete as directed by the Government Representative including the single base for guardrail post;
  - .6 Cleaning, surface preparation and disposition of debris;
  - .7 Cleaning of reinforcing steel to be retained;
  - .8 Cleaning of the concrete substrate;
  - .9 Saw cuts and upper seat demolition and disposal.
  - .10 Collection, disposal and treatment of demolition materials as prescribed by Section 01 74 19 – *Waste Management and Disposal*;
  - .11 Any incidental expenses and coordination.
- .2 Item 3.2 – Cast-In-Place Concrete
- .1 Payment item 3.2 of the *Bid Form* is a price per cubic metre (m<sup>3</sup>) of wall concrete, the quantities are calculated according to the actual quantities cast, in accordance with the requirements of the drawings and specifications.
  - .2 The repairs are done continuously on all the length of the affected sections by types of repair required by the specifications.
  - .3 The price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction of the Work Plan, the shop drawings, the concreting procedure, the descriptions of the mixtures and the technical data sheets required. The preparation, presentation and correction of the section and typical profile of concreting for approval;
    - .2 Mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The excavation of 600 mm behind the wall and the transportation are included in item *Excavations and stockpiling*;
    - .4 Supply, installation, vibration, finishing, wet curing of concrete (including additional concrete for the bollards);
    - .5 Treatment of surplus materials in accordance with Section 01 74 19 – *Waste Management and Disposal*;
    - .6 The preparation, presentation and correction of the section and typical profile of cast-in-place concrete for approval;
    - .7 The preparation, supply and repair of cracks exceeding the specific requirements of the specifications;

- .8 Provide for the preparation, supply and treatment of specific cracks (other than that of the previous article) for the purpose of injecting 20 meters in length. This processing length is conditional upon approval by the Governmental Representative;
- .9 Any incidental expenses and coordination.
- .4 The submitted price is paid as shown below:
  - .1 100% of the price after the concrete curing has been completed and after the formwork removal to the satisfaction of the Government Representative;
- .3 Item 3.3 – Formwork in contact with cast concrete.
  - .1 Payment item 3.3 of the Bid Form is priced per square meter (m<sup>2</sup>) of surface coming into contact with the concrete to be poured in accordance with the requirements of the drawings and specifications. For estimation purposes, provide irregular flange formwork over the entire length of the wall replacement intervention - (Type 2A). For estimation purposes, provide 22 m<sup>2</sup> of irregular formwork for the crevices and holes in the seats, as indicated on the drawings.
  - .2 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction of the Work Plan, the shop drawings, the concrete forming procedure and the technical data sheets required. The preparation, presentation and correction of the section and typical profile of formwork for approval;
    - .2 The supply, installation and uninstallation of formwork and anchors;
    - .3 The supply and installation of chamfers for corners;
    - .4 The supply and installation of 20 mm chamfers for joints;
    - .5 The supply and application of release agent;
    - .6 The supply and application of repair mortar for formwork cones;
    - .7 The supply and installation of a sealing membrane on construction joints of the backfilled face of the crowning wall (300 mm and 500 mm);
    - .8 The supply, transport, handling and setting of steel elements integrated into the concrete as shown in the drawings.
- .4 Item 3.4 - Reinforcing Galvanised Steel
  - .1 Payment item 3.4 of the *Bid Form* is priced per kilogram (kg) of steel according to the quantities placed in the formwork, in accordance with the requirements of the drawings and specifications.
  - .2 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of the Work Plan, the shop drawings and the slip concerning the laying of steel bars;
    - .2 The mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The supply of reinforcing bars and the shaping thereof,
    - .4 Galvanizing when stipulated in plans and specifications;



- .5 On-site coordination and adjustments required for the installation of concrete castings and post-wall drilling (bollards, ladders, drains, guardrail anchors, etc.).
  - .6 The rebar installation confirmation table and a revision of the installation slip.
  - .7 Field cuts and adjustments;
  - .8 The laying of reinforcing steel required including the reinforcing steel in of the upper seat repairs;
  - .9 Any incidental expenses and coordination.
- .5 Items 3.5 - Chemical anchorage
- .1 Payment item 3.5 of the *Bid Form* is priced per unit of chemical anchor, in accordance with the requirements of the drawings and specifications.
  - .2 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction of shop drawings and anchor chemical technical sheet;
    - .2 Mobilization of labor, tools and equipment required for the execution of the work;
    - .3 Drilling and cleaning of holes for the installation of chemical anchors of upper seat repairs;
    - .4 The supply, handling, transport and installation of steel anchor rods and anchor chemicals;
    - .5 The execution of tests on control anchorages, in accordance with Section 03 30 03 – *Concrete Repair*;
    - .6 The confirmation installation table of reinforcement bars and a revision of the installation slip;
    - .7 Any incidental expenses and coordination.
  - .3 This item excludes the following items:
    - .1 Anchors, used to replace formwork tie-rods, which are used to hold the formwork in place and are required for the placement of concrete on existing concrete, are not covered by any item in the slip and All costs incurred by the Contractor for the construction of these works are included in the price of the formwork.
- .6 Position 3.6 - Bollards
- .1 Payment item 3.6 of the *Bid Form* is unit priced for the removal, surface preparation, painting and replacing of the bollards in accordance with the requirements of the drawings and specifications.
  - .2 **Note that the existing bollard paint contain lead.** The Contractor must adapt his price to take into account the requirement of CNESST in terms of lead exposition during stripping.
  - .3 The surface preparation and the paint stripping containing lead can't be done in the field work zone. The works must be done inside a total confinement enclosure or a factory.
  - .4 Price includes, but is not limited to, the following:

- .1 The survey of the bollard localisation, the preparation, presentation, and correction, if required, of shop drawings, the paint stripping procedure containing lead, the painting procedure, samples and technical data sheets required.
  - .2 Photographic survey of existing bollards;
  - .3 Specific bollard identification;
  - .4 Mobilization of labor, tools and equipment required for the execution of the work;
  - .5 Removal, transportation, handling, storage of bollards;
  - .6 The supply, handling, transport and use of materials;
  - .7 All costs incurred in the preparation of surfaces;
  - .8 The lead paint removal wastes disposition;
  - .9 Painting of the bollards;
  - .10 Repositioning bollards, including new anchors of the same size as the existing one (same localisation them existing);
  - .11 In the event of damage, immediately repair the affected items and at the Contractor's expense;
  - .12 Total confinement enclosure
  - .13 Soil clearance around the bollards
  - .14 All costs related to the work in section 35 59 29 - *Mooring equipment*;
  - .15 Any incidental expenses and coordination.
- .5 The submitted price is paid as indicated below:
- .1 100% of the price after the removal of the Bollards, to the satisfaction of the Government Representative.



.7 Posts 3.7 - Rungs

- .1 Payment item 3.7 of the *Bid Form* is a unit price for the establishment of a series of rungs in accordance with the requirements of the drawings and specifications.
- .2 This item is composed of the equivalent number of steps (rows) in the existing section. It includes the holes on each of the steps (rows) and on the top of the wall and the smooth galvanised steel, as described in the drawings. The price also includes the chemical anchors required for installation and all incidental expenses.
- .3 The existing section is composed of four steps on the front face and one on the top. In case of variation, the rungs will be paid proportionally.
- .4 Price includes, but is not limited to, the following:
  - .1 The georeferenced surveys, the preparation, the presentation, and the correction of shop drawings, samples, and technical data sheets. Provide a DWG, PDF and EXCEL spreadsheet with identification, location and any other relevant information on the height of the rows, numbers, spaces between them, type, shape and identification section;
  - .2 Mobilization of labor, tools and equipment required for the execution of the work;

- .3 The supply, transport, handling and setting of the echelons, such as the existing ones;
  - .4 Any incidental expenses and coordination.
- .8 Item 3.8 – Type 1 Borrowing Materials, MG-20
- .1 Payment item 3.8 of the *Bid Form* is priced per tonne (t) for the borrow materials in accordance with the requirements of the drawings and specifications.
  - .2 This item is related to materials that replace excavated materials. No reuse of materials is expected for the crowning wall replacement on this Contract
  - .3 Price includes, but is not limited to, the following:
    - .1 Transportation of borrow materials to the site;
    - .2 The supply and installation of borrow materials in accordance with the drawings, specifications, and instructions of the Government Representative;
    - .3 Compaction, tests and register;
    - .4 Cleaning of premises;
    - .5 Any incidental expenses and coordination.

## 2.4 Item 4 – Timber Crib Walls

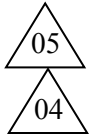
- .1 Item 4.1 – Timber cribs demolition
- .1 Payment item 4.1 of Bid Form is a fixed lump sum amount to compensate all necessary expenses incurred for Timber cribs demolition in accordance with the drawings and specifications, to the wall concept. supported, as directed by the Departmental Representative. The height of the cribs to be envisaged is  $\pm 4,5$  m.
  - .2 For estimation purposes, provide that all wood is treated with preservatives such as creosote (CR) must be disposed of in accordance with the regulations in force
  - .3 The amount includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of the timber cribs demolition Work Plan;
    - .2 The mobilization of labor, tools, and equipment required to carry out the work;
    - .3 Sawing the timber cribs at the boundaries of the demolition zones
    - .4 Cleaning, surface preparation and disposal of waste material;
    - .5 Treatment of surplus materials in accordance with the requirements of Section 01 74 19 – *Waste management and disposal*. This includes all the components of the caissons (wood, fasteners, etc.);
    - .6 Any incidental expenditure.

- .1 Item 4.2 - Cofferdam



- .1 Payment item 4.2 of the *Bid Form* is a fixed lump sum amount to compensate all necessary expenses incurred in the execution of the temporary support work in accordance with the requirements of the specifications and instructions of the Government Representative.
- .2 Following the installation, the cofferdam must be inspected by a competent engineer, member in good standing of the *Ordre des ingénieurs du Québec* (OIQ). A written notice signed by the engineer stating that the cofferdam is built in accordance with the submitted plans, shall be given to the site supervisor. This notice must mention the date and time of the inspection.
- .3 When the cofferdam is no longer needed, the contractor must remove it. The removal must be done from downstream to upstream.
- .4 Price includes, but is not limited to, the following:
  - .1 The preparation, presentation and correction of shop drawings signed and sealed by a competent engineer, member in good standing of the *Ordre des ingénieurs du Québec* (OIQ);
  - .2 Mobilization of labor, tools and equipment required for the execution of the work;
  - .3 The supply, transport, handling, storage and setting of the cofferdam;
  - .4 Inspection, pumping, care and maintenance of the cofferdam for the total duration of the work on the timber crib walls;
  - .5 Removal of the cofferdam;
  - .6 Cleaning of premises;
  - .7 Any incidental expenses and coordination.
- .5 The submitted price is paid as indicated below:
  - .1 70% of the price after the installation of the cofferdam, to the satisfaction of the Government Representative;
  - .2 30% of the price after the removal of the cofferdam and the cleaning, to the satisfaction of the Government Representative.
- .2 Item 4.3 – Timber crib walls
  - .1 Payment item 4.3 of the *Bid Form* is a fixed lump sum amount to compensate all necessary expenses incurred in the construction and installation of the timber cribs, in accordance with the requirements of the drawings and specifications.
  - .2 Every after-treatment cuts, notch and hole in the wood or any damage on the surface of a piece must be re-treated with a wood preservative product in accordance with section 06 05 73 *Wood Treatment*;
  - .3 Timber cribs must be filled with stones. Stones must be placed carefully to avoid damaging the cribs and must be placed to minimize voids between stones.
  - .4 Price includes, but is not limited to, sections 06 05 73 – *Wood treatment*, 06 14 00 – *Treated wood foundations* and 31 53 13 – *Timber Crib Wall*, as well as following:
    - .1 The preparation, presentation and correction of the Work Plan, shop drawings and calculation note of the timber cribs;





- .2 Mobilization of labor, tools and equipment required for the execution of the work;
- .3 Protection of existent works;
- .4 The supply, transport, handling and storage of treated wood;
- .5 The supply, transport, handling, storage and setting of galvanized metal connector hardware;
- .6 The supply, transport, handling and setting of geotextiles, stones and MG-20 required for the construction of the timber cribs;
- .7 Cleaning of premises;
- .8 Any incidental expenses and coordination.



- .5 The submitted price is paid based on the percentage of completion of this work.
- .3 Item 4.4 – Type 2 Borrowing Materials, MG-20
  - .1 Payment item 4.4 of the *Bid Form* is priced per tonne (t) for the borrow materials in accordance with the requirements of the drawings and specifications.
  - .2 This item is related to materials that replace excavated materials. No reuse of materials is expected for the crowning wall replacement on this Contract
  - .3 Price includes, but is not limited to, the following:
    - .1 Transportation of borrow materials to the site;
    - .2 The supply and installation of borrow materials in accordance with the drawings, specifications, and instructions of the Government Representative;
    - .3 The supply, transport, handling and setting of geotextiles;
    - .4 Compaction, tests and register;
    - .5 Cleaning of premises;
    - .6 Any incidental expenses and coordination.

## 2.5 Item 5 – Traffic maintenance end temporary signage

The temporary signage and the dimensions of signs on the pedestrian path have to be compliant with Annexe F – *Liste des panneaux de signalisation pour les voies cyclables*, with chapter 7 – *Voies cyclables* and with tome V – *Signalisation routière – Volume 1, 2 and 3* of road works published by “Les publications du Québec”.

The signs used for this project have to be bilinguals.

- .1 Item 5.1 - Traffic Maintenance and Temporary Signage
  - .1 Payment item 5.1 is a daily price for traffic and temporary signaling for the pedestrians and cyclists as shown on the drawings and orthophotos and all other pedestrian or biking access possibly needed during the works.
  - .2 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of shop drawings signed and sealed by a competent engineer, member in good standing of the *Ordre des ingénieurs du Québec* (OIQ);

- .2 Acquiring of all required certificates;
- .3 The provision, mobilization, maintenance, replacement in the event of breakage or vandalism, the commissioning or disengagement, the displacement and demobilization of the temporary signaling required to carry out work on the entire site in accordance with the requirements of *Tome V – Signalisation routière – Volume 1, 2 and 3*;
- .4 Maintenance of circulation and temporary signs during the works;
- .5 The supply of warning signs for work, stop, diversion and dismount for the repair of the cycle path.
- .6 The provision of signalers as required;
- .7 Temporary signaling, tools, equipment, machinery, vehicle and labour required for the complete execution of all works;
- .8 Bilingualism of the temporary signs;
- .9 Modification and rehabilitation of existing signage;
- .10 Maintenance of access of residents;
- .11 Identification with a TR-V-7 beacon of all objects within 1.2 m of the temporary polyvalent path;
- .12 Any incidental expenses and coordination.
- .3 Are excluded the following:
  - .1 Mobilisation to working area, their maintenance and their removal, including the panels and the panel maintenance;
  - .2 Maintenance and all temporary signage other than the one related to the pedestrian access explain above are included in construction facilities item.
- .2 Item 5.2 - Special Signs
  - .1 Payment item 5.2 of the *Bid Form* is priced per square meter (m<sup>2</sup>) for the conformity and installation of special panels and signs in accordance with the requirements of the drawings and specifications.
  - .2 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation and correction of shop drawings signed and sealed by a member engineer in good standing of the *Ordre des ingénieurs du Québec*(OIQ);
    - .2 Obtaining all required certificates;
    - .3 The supply, shaping, transportation and handling of the materials required for the application of the special panels and signs;
    - .4 Mobilization of labor, tools and equipment required for the execution of the work;
    - .5 The provision of accessories required for the installation of panels and signs such as poles, braces, hardware;
    - .6 Implementation, maintenance, replacement in case of accident, breakage or vandalism of special panel;
    - .7 Maintenance of the panel;
    - .8 Demobilization of special panels and signs at the end of the work;

- .9 Turning the traffic sign on or off, as often as required;
- .10 Temporary signage required during operations;
- .11 Bilingualism of temporary signs;
- .12 Any incidental expenses and coordination.

## 2.6 Item 6. - Provision for Winter Conditions - Concreting in Cold Weather

- .1 Item 6.1.1 - Temporary Shelter and heating for Concrete Pouring of the Crowning Walls.
  - .1 Payment item 6.1.1 of the *Bid Form* is priced per linear meter (Lin. m.) to offset all costs incurred for the temporary shelter of pre-concrete and concrete work for crowning walls, upper seats and slabs and backfilling, in accordance with the requirements of the plans and specifications.
  - .2 Temporary shelter is payable only if it is required in writing by the Government Representative.
  - .3 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction of the shop drawings and the description of the shelter.
    - .2 Mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The supply, handling and transportation of the materials required to construct the shelter;
    - .4 Installation, maintenance during construction and dismantling at the end of the temporary shelter;
    - .5 Heating of the temporary shelter during the work;
    - .6 Off-site transportation of materials;
    - .7 Any incidental expenses and coordination.
  - .4 The bid price is paid as follows:
    - .1 50% of the amount after assembly of the shelter to the satisfaction of the Government Representative;
    - .2 50% of the amount after the evacuation of the materials that made up the shelter, outside the construction site.
  - .5 The price includes the equivalent of the intervention length regardless of the number of installations and relocations required. Only the equivalent of the intervention length will be paid. If the contractor places two shelters at two different heights on the same 1 m repair section, a single 1m shelter will be paid and not 2 m.
- .2 Item 6.1.2 - Temporary Shelter and heating for Concrete Pouring of the walls above timber cribs.
  - .1 Payment item 6.1.2 of the *Bid Form* is priced per linear meter (Lin. m.) to offset all costs incurred for the temporary shelter of pre-concrete and concrete work, in accordance with the requirements of the plans and specifications for the timber crib walls.

- .2 Temporary shelter is payable only if it is required in writing by the Government Representative.
  - .3 Price includes, but is not limited to, the following:
    - .1 The preparation, presentation, and correction of the shop drawings and the description of the shelter.
    - .2 Mobilization of labor, tools and equipment required for the execution of the work;
    - .3 The supply, handling and transportation of the materials required to construct the shelter;
    - .4 Installation, maintenance during construction and dismantling at the end of the temporary shelter;
    - .5 Heating of the temporary shelter during the work;
    - .6 Off-site transportation of materials;
    - .7 Any incidental expenses and coordination.
  - .4 The bid price is paid as follows:
    - .1 50% of the amount after assembly of the shelter to the satisfaction of the Government Representative;
    - .2 50% of the amount after the evacuation of the materials that made up the shelter, outside the construction site.
  - .5 The price includes the equivalent of the intervention length regardless of the number of installations and relocations required. Only the equivalent of the intervention length will be paid. If the contractor places two shelters at two different heights on the same 1 m repair section, a single 1m shelter will be paid and not 2 m.
- .3 Item 6.2 – Insulator (RSI 0.40 per layer)
- .1 Payment item 6.2 of the *Bid Form* is priced per square meter (m<sup>2</sup>) of new concrete without formwork covered by an insulator, in accordance with the requirements of the drawings and specifications.
  - .2 Insulator layers are paid only if required, in writing, by the Government Representative;
  - .3 Price includes, but is not limited to, the following:
    - .1 Preparation, presentation and correction of the description of the composition of the insulator layer;
    - .2 Mobilization of labour, tools and equipment required for the execution of work;
    - .3 Supply, handling, transportation, installation, maintenance during work, removal and disposal of the insulator layers at the end of work;
    - .4 Costs related to the protection of concrete by insulator for the correction of defective work are to be paid by the Contractor;
    - .5 Any incidental expenses and coordination.
- .4 Item 6.3 - Heating of Concrete Components

- .1 Payment item 6.3 of the *Bid Form* is priced per cubic meter (m<sup>3</sup>) of concrete or cement slurry installed, the components of which are heated in accordance with the requirements of the drawings and specifications.
- .2 This item is used for all concrete activities if required.
- .3 Price includes, but is not limited to, the following:
  - .1 Heating of the mixing water (between 40° C and 80° C) used for the manufacture of the concrete;
  - .2 Heating of aggregates to remove frozen pieces, snow, and ice;
  - .3 The cost of heating the concrete or grout components without the need for shrinkage because of the correction of defective work shall be borne by the Contractor;
  - .4 Any incidental expenses and coordination.

## 2.7 Item 7 – Specialized Equipment

- .1 Item 7.1 – Replacement of Asphalt from a Bicycle path Area
  - .1 Payment item 8.1 of the *Bid Form* is a price per square metre (m<sup>2</sup>) of asphalted area to replace the full width of the bicycle path, in accordance with the requirements of the drawings and specifications.
  - .2 Any other area of asphalt to be replaced must be included in item 1.1 – *Construction Facilities*.
  - .3 Price includes, but is not limited to, the following:
    - .1 Asphalt sawing (plan sawing perpendicular to the path);
    - .2 Excavation, loading and transportation of excavated materials (paving and foundation);
    - .3 Off-site disposal of excavated materials to a site in accordance with the requirements of the section on contaminated soils procedures;
    - .4 Grading and preparation of the existing foundation, including supply of material, if required;
    - .5 Supply and installation of new foundation;
    - .6 50 mm asphalt paving of type EC-10 PG 58-28;
    - .7 Any incidental expenses and coordination.
  - .4 Any other damage resulting in quantities greater than those stipulated in the *Bid Form* must be included in the site restoration item;

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 06 14 00 – *Treated wood foundations.*
- .2 Section 31 62 16.02 – *Timber crib wall*

**1.2 REFERENCE STANDARDS**

- .1 ASTM International (ASTM)
  - .1 ASTM A123, last edition, *Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.*
  - .2 ASTM A153/A153M, last edition, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.*
  - .3 ASTM A653/A653M, last edition, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.*
  - .4 ASTM F2329/F2329M, last edition, *Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners*
- .2 American Wood-Preservers' Association (AWPA)
  - .1 AWPA M2, last edition, *Standard for Inspection of Treated Wood Products.*
  - .2 AWPA M4, last edition, *Standard for the Care of Preservative-Treated Wood Products.*
- .3 CSA Group (CSA)
  - .1 CSA O80 Series, last edition, *Wood Preservation.*
  - .2 CSA O322, last edition, *Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.*
- .4 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1113, last edition, *Architectural Coatings.*
- .5 Underwriters Laboratory of Canada (ULC)
  - .1 CAN/ULC-S102 *Surface Burning Characteristics of Building Materials and Assemblies.*

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit Submittal submissions: in accordance with Section 01 33 00 - *Submittal Procedures.*
- .2 Quality assurance submittals:
  - .1 Submit certificates in accordance with Section 01 33 00 - *Submittal Procedures.*

- .2 For products treated with by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
  - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
  - .2 Moisture content after drying following treatment with water-borne preservative.
  - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.
- .3 Recommended metal connector and fastener materials and corrosion protection.
- .4 Product recommendation for field treatment.

#### **1.4 SUSTAINABLE DESIGN SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - *Submittal Procedures* and Section 01 35 43 - *Environmental procedures* to confirm that products and procedures conform to specified sustainability requirements.
- .2 Submit manufacturer's Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.
- .3 Low-Emitting Materials:
  - .1 Submit listing of adhesives and sealants used in building, showing compliance with VOC and chemical component limits or restriction requirements.

#### **1.5 QUALITY ASSURANCE**

- .1 Plant inspection of products treated with preservative by pressure impregnation must be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.
- .2 Each piece of lumber and plywood for preserved wood foundations to be identified by CSA O322 certified stamp.
- .3 Inspection and testing of insert materials will be carried out by a Testing Laboratory mandated by the Contractor.
- .4 The cost of the tests is included in that of the wooden works

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - *Common Product Requirements*, with AWPA M4 and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with product category, manufacturer's name and address.
- .3 Waste Management and Disposal:
  - .1 Separate waste materials for recycling in accordance with Section 01 74 19 - *Waste Management and Disposal*.



## Part 2 Products

### 2.1 SUSTAINABLE REQUIREMENTS

- .1 Preservatives: maximum VOC limit 350 g/L in accordance with SCAQMD Rule #1113, Architectural Coatings.
- .2 Wood preservation plants: certified by Canadian Wood Preservation Authority (CWPCA) to Environment Canada Technical Recommendation Document for the Design and Operation of Wood Preservation Facilities.
- .3 All treated surfaces must be completely covered with a sealer specifically designed for this purpose and approved by the Government Representative.

### 2.2 PRESERVATIVE TREATED WOOD MATERIALS AND APPLICATION

- .1 Provide preservative treated lumber and plywood in accordance with CSA O80 Series standards as specified below.
- .2 Timber Crib walls posts in fresh water and ground contact:
  - .1 Use Category: UC4.2
  - .2 Clause: 8.2 reference CSA O80.1
- .3 The product used for wood treatment must be **Copper azole, Type B (CA-B)**
- .4 The selected wood species must be included on this list: hemlock, western hemlock, jack pine, red pine and Douglas fir.
- .5 The minimum retention for lumber shall be as specified in table 10 of the CSA O80.1-15 in accordance with the species of wood used and the Use Category.
- .6 The maximum moisture content should be reduced to 19% after the water-based preservation treatment.
- .7 Preservation treatment should provide a finish similar to existing timber cribs. Provide a sample according to section 01 33 00 – *Submittal Procedures*.

### 2.3 CORROSION PROTECTION FOR CONNECTORS AND FASTENERS FOR USE WITH TREATED WOOD

- .1 Fasteners: Hot dip galvanized to ASTM A153/A153M Class C and D and ASTM F2329/F2329M.

### 2.4 PRESERVATIVE FOR FIELD TREATMENT

- .1 Type recommended by manufacturer to suit specified pressure treated products.

## Part 3 Execution

### 3.1 CONSTRUCTION

- .1 Use fasteners with specified corrosion protection in all construction with treated wood products specified in section 2.3.1 herein.



**3.2 FIELD TREATMENT**

- .1 Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.
- .2 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of recommended preservative before installation.
- .3 Remove chemical deposits from surfaces of treated wood to receive applied finish.

**3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - *Cleaning*.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - *Cleaning*.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 19 - *Waste Management and Disposal*.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**