Canada Parks Agency
Rehabilitation Lachine Canal Walls
Repair and replacement of crowning walls (Areas 6,7,8 AND 9 – Reach No 3)
Project N° CLAC-1455-08
Addendum n° 01

Specifications

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 02 41 99- *Demolition for minor works*

.2 Section 03 10 00 - *Concrete Forming and Accessories*

.3 Section 03 20 00 – *Concrete Reinforcing*

.4 Section 03 30 00 – *Cast-in-Place Concrete*

.5 Section 03 30 03 – *Concrete Repair*

.6 Section 05 50 00 – *Metal Fabrications*

.7 Section 06 08 99 – *Rough Carpentry for Minor Work*

.8 Section 09 97 19 – *Painting Exterior Metal Surfaces*

.9 Section 31 05 16 – *Aggregate Materials*

.10 Section 31 11 00 – *Clearing and Grubbing*

.11 Section 31 23 33.03 – *Excavating, Trenching and Backfilling*

.12 Section 31 32 19 – *Geotextiles*

.13 Section 31 62 16.13 – Steel Sheet Piles

.14 Section 32 91 19.13 – *Topsoil Placement and Grading*

.15 Section 32 92 23 – *Sodding*

.16 Section 35 59 29 – *Mooring Devices*

1.2 DEFINITIONS

.1 Navigation period: from the Friday preceding Victoria Day until thanksgiving.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

.1 The Work covered by this contract includes the restoration of the Lachine Canal walls on the section(s) indicated in the Tender Form and on drawings.

.1 The restoration works can include one or more of the following activities, without limitation:

.1 Replacement or rehabilitation of crowning walls (Retaining wall);

.2 Installation of a retaining system with steel sheet piles and all train track stability verifications during works;

.3 Works in proximity of an active train track that will be temporary closed during a specific time;

.4 Any other repair details shown on drawings and proposed in the current contract,

.5 Perform a detailed survey of the existing wall to be repaired or replaced. Validate precise dimensions, and profiles of crowing walls subject to the current contract. Validate the alignment starting from the bas of existing crowning wall. Perform all required survey; Perform the survey of the exact crowning wall dimensions and of the top of the seat walls and all the concrete components attached to it in order to obtain the exact existing profile;

.6 Perform a detailed survey of the natural ground on a 6-meter width behind the crowning wall or the new crowning wall projection;

.7 The crowning wall survey must provide the identification, the georeferenced drawing layout of the base of the existing wall (inside face of Canal Lachine) at the junction with the seat, the top of the wall, the chamfrain diameters (both faces), the bollard keys, the concrete base detached of the wall, the elevation and position of the rungs, bollards, conduits, drains, ladders and guard rails;

.8 Provide detailed shop drawings, showing existing profiles of wall that must be repaired or replaced in addition to final profiles, for the Departmental Representative's approval. Submitted profiles must be consistent with existing profiles. Provide the survey drawing layout of **the crowning wall** including, but without limitation, the plan view under AutoCAD 3D (.DWG) and Acrobat (.PDF) of the existing and the new one, different sections of the existing and new one, excel sheet (.XLS) of the survey points with the information on the front and back face, the base, the width, the height, the chamfrain diameters, etc.

.9 The seat wall survey must provide the identification and the georeferenced drawing layout of the bottom of the canal at the wall base, the bottom, median and top parts of the seat, also the angle change in the seat slope to allow the execution of the sections and profiles of the existing. The survey must identify the solid parts (rocks, concrete, etc.) and the soil parts.

.10 Provide detailed shop drawings of the survey of the **seat walls (slope wall)**, including, but without limitation, the plan view under AutoCAD 3D (.DWG) and Acrobat (.PDF) of the existing and the new one, different sections of the existing and new one, excel sheet (.XLS) of the survey points with the information on the bottom, median and top parts. The proposed profiles will have to be consistent with the existing profiles.

.11 Supply a excel table (.XLS) of data from the existing rungs, bollards survey (localisation, numbers, height distance between rungs, etc.)

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.12 Execute all survey requirements for the wall section between Atwater footbridge and the CN rail bridge de B3-N-11 to B3-N-13 (372 m).

Additional survey in sectors B3-S-10 to B3-S-04 (990 m) are also needed. In addition of the survey requirement mention an exhaustive survey on a distance of 22 meters behind the wall with a grid of five (5) meters need to be done in this area. The highest and lowest point

of the slope and the corner of any obstacles are also included in the survey.

.13 Provide a complete and detailed survey of the top and sides of existing dressed stones under the base of the crowning wall in order to supply a shop drawing that can determine the elevation of the new concrete footing and the wall base on the canal face side (variable according to the stone elevations)

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.14 The Contractor is responsible for providing appropriate platforms and temporary supports, required to undertake work shown on the plans, specifications, and tender form. No additional fees will be allotted to the contractor if he must modify his access system during work. **The drawing of the platforms must be send and approved by Tansports Canada prior to mobilization of the contractor.**

.15 Provide and install confinement chambers to allow concrete pouring in winter conditions,

.16 The Contractor is responsible to provide, at his own expenses, all required shelters, and heating systems, to be able to perform work in winter conditions.

.17 The Departmental Representative will film certain stages of work. By bidding on this contract, the Contractor is aware of this circumstance and can in no case oppose the films being recorded during the execution of work.

.18 Perform landscaping work.

.19 A navigation corridor will have to be put in place on the encroachment line in the canal. Contractor must install navigation buoy at the end of each work zone and an additional on in the middle. The navigation buoys must be all green on the port (left) side when moving upstream direction and red on the starboard (right) side when moving upstream direction. In addition to the navigation buoys, security buoys (yellow) must be put in place between each navigation buoy (distance 10m) to maintain a cable up flow. Installation of buoys must be in accordance with Transport Canada regulation. **The drawing of the waterways corridor must be send and approved by Tansports Canada prior to mobilization of the contractor.**

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.2 All construction, demolition, and related temporary work, must be performed in accordance with standards, including the security code for construction S-2.1, r.6, CSA S350 and other applicable safety regulations put in place by the owner.

.3 The Contractor must provide all required labour, materials, and equipment to perform work shown in the drawings.

.4 Perform demolition work as shown on the drawings. The section shown in the drawings specify either additional demolition, removal of loose concrete, the mecanical preparation or cleaning cavities.

.5 In zones affected by the demolition works, the contractor assumes all responsibilities in regards to the protection against dust, the danger of demolition, and others.

.6 Provide, for verification purposes, the drawings, graphics, and details indicating the dismantling order of the work, shoring parts, and temporary work.

.7 All temporary work drawings must be certified by a competent engineer, recognized in the province of Quebec.

.8 Take all necessary precautions to prevent any movement or collapse of structures that must be conserved to avoid any damage. Provide and install all parts required for shoring and reinforcement. Perform all necessary remedial work as required. Put in place all necessary precautions to ensure the safety of workers throughout the work.

.9 Anchors must be installed in accordance with the recommendation of the Departmental Representative in the presence of his authorised representative.

.10 The Contractor must coordinate his work in accordance with the existing dimensions and profiles, and must provide profiles adapted to the existing ones for the Departmental Representative's approval. The Contractor must provide shop drawings showing final profiles and variants for comment.

.11 Marking required for any encroachment in the canal during the navigation period.

1.4 CONTRACT METHOD

.1 Construction work is under lump-sum contract and unit price contract, in accordance with the articles presented in the Tender Form.

1.5 WORK BY OTHERS

.1 Not used.

1.6 FUTURE WORK

.1 Not used.

1.7 WORK SEQUENCE

.1 Deadlines

.1 The work under this contract must be completed in full (20) twenty calendar weeks starting May 7th 2018.

.2 The contractor is advised that de replacement of the crowning wall between Dominion and Charlevoix streets must be completed in phase A to give the area to another contract during fall 2018. The rest of the contract will be in phase B.

.3 The final demobilization must be completed ten (10) opening day after the acceptation by the owner of the declaration of substantial completion of works.

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~~.4 All other activities must be completed within the (20) weeks deadline.~~

.2 Scheduling

.1 Construction Facilities

.1 At the **kick-off meeting**, the Contractor must submit the Construction **Facilities Layout Plan** to the Departmental Representative for approval.

.1 In the five (5) working days following of submittal of the layout plan, the Departmental Representative shall return a reviewed copy of the plan, along with any comments to the Contractor.

.2 Within five (5) working days following the acceptance of the Construction Facilities Layout Plan, the Contractor shall have completed the installation of the construction trailers.

.2 Restoration of the Lachine Canal Walls

.1 At the **kick-off meeting**, the Contractor must submit to the Departmental Representative the **Work Sequence for the wall restoration** with a justification for each phase of the works.

.1 The Work Sequence for the wall restoration shall be prepared by prioritizing certain work to allow the execution of other work, in favour of the execution time.

.2 In the five (5) working days following the submittal of the Work Sequence for the restoration work, the Departmental Representative shall return to the Contractor, a reviewed copy of the document, along with any comments.

.2 At the **kick-off meeting**, the Contractor must submit to the Departmental Representative the **layout plan (GANTT diagram)**, considering the information contained in the Work Sequence.

.1 Prepare the layout plan in accordance with the timeframes specified in the present specifications section and in the Tender Form.

.2 In the five (5) working days following the submittal of the layout plan, the Departmental Representative shall return to the Contractor a reviewed copy of the plan, along with any comments.

.3 Submit the execution schedule to the Departmental Representative five (5) working days after the acceptation of the layout plan;

.4 In the five (5) working days following the submittal of the execution schedule, the Departmental Representative will return to the Contractor a reviewed copy of the schedule, along with any comments.

.3 Perform all repair works in accordance with the Work Sequence and the execution schedule approved by the Departmental Representative.

.4 At the **kick-off meeting**, submit to the Departmental Representative the **Temporary Signage drawings** for traffic management during the execution of the wall restoration work.

.1 In the five (5) working days following the submittal of the Temporary Signage drawings for traffic management, the

Departmental Representative shall return to the Contractor a reviewed copy of the drawings, along with any comments.

.2 Within five (5) working days following the acceptance of Temporary Signage drawings, the Contractor shall have completed the installation of these drawings on the site.

.5 At the **kick-off meeting**, submit to the Departmental Representative the **shop drawings of the Temporary Access System (platforms)** for the execution of the wall restoration works.

.1 In the five (5) working days following the submittal of the Temporary Access System shop drawings, the Departmental Representative shall return to the Contractor a reviewed copy of the drawings, along with any comments.

.2 Immediately after having received the acceptance of the Temporary Access System shop drawings, the acceptance of the environmental protection plan (EPP) and once the temporary signage has been installed and approved by the Departmental Representative, the Contractor shall implement the Temporary Access System on the site.

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.6 Ten (10) working days before the mobilization, submit to the Departmental Representative, the train track retaining and protection system shop drawings for the execution of the wall restoration work **and the survey method for the railway (Section 01 31 19, article 1.4.5.8)**

.1 In the five (5) working days following the submittal of the **train track retaining and protection system shop drawings**, the Departmental Representative shall return to the Contractor a reviewed copy of the drawings, along with any comments.

.2 Immediately after having received the acceptance of the **train track retaining and protection system shop drawings** by Departmental Representative, the Contractor can start installing the retaining system.

.7 Five (5) working days after the **kick-off meeting,** submit to the Departmental Representative the **Environmental protection plan (EPP)** for the execution of the wall restoration work.

.1 In the five (5) working days following the submittal of the **Environmental protection plan (EPP)** the Departmental Representative shall return to the Contractor a reviewed copy of the plan, along with any comments.

.2 Immediately after having received the acceptance of the **Environmental protection plan (EPP)** by Departmental Representative, the work site mobilisation will be permitted.

.8 Unless otherwise specified in the specifications, submit the necessary shop drawings for the execution of the wall restoration work to the Departmental Representative ten (10) working days before the beginning of the works.

.1 In the five (5) working days following the submittal of the the shop drawings, the Departmental Representative shall return to the Contractor a reviewed copy of the plan, along with any comments.

.2 In the five (5) working days following the acceptance of the shop drawings, deliver the necessary materials on site.

1.8 INSTRUCTIONS TO THE CONTRACTOR

.1 By accepting this Contract, the Contractor accepts all the responsibilities normally assigned to the Prime Contractor under the workplace health and safety regulations. Before starting the works, the Contractor must perform the following activities:

.1 Submit to the Departmental Representative a Health and Safety Plan and a mechanical inspection certificate for each piece of machinery used on site.

.2 Ensure that workers on the site have received the training and information required to perform the work safely and that all required tools and protective equipment are available, in compliance with all standards, laws, and regulations.

.3 Comply at all times with the provisions of the occupational health and safety regulations and safety codes.

.4 Inform your employees of their right to refuse any work that is dangerous to their health or safety.

.5 Identify and barricade the work area and control access to the site.

.6 In the case of an unforeseen incident, take all necessary measures, including stopping work, to protect the health and safety of the workers and the public, and immediately contact the Departmental Representative.

.2 Execute the work to provide for continuous public usage. Maintain access to the public places as long as an alternative has not been developed when the progress of the works is an impediment to the free movement of the public.

.3 Before beginning any work, the Contractor must proceed with a survey of the existing wall. This survey needs to be done for the entire project. In order to do so, removal of topsoil and deforestation within 300 mm behind the wall needs to be done before the survey.

1.9 CONTRACTOR USE OF PREMISES

.1 The work area can be used continuously until substantial completion (end of works deadline). The construction sites are restricted to the areas mentioned on the plans.

.2 Site access points cannot be used as storage or site facility areas.

.3 The railing materials, including rails, sleepers, ballast and sub-ballast must be conserved and protected.

.4 Care must be taken by the contactor to prevent rails and sleepers damage. The crawler equipment must not circulate on the rails of sleepers. If required, the rails must be protected with a caoutchouc mat of other materials to obtain a physical protection on all the train track elements (rails, sleepers, ballast, etc.). The controlled backfill is possible

over the tracks when a adequate rail protection is installed. All rail damage must be quickly reported to the CN without delay.

.5 A particular care must be taken by the contractor to not contaminate the ballast and the train infrastructure with fine particles. A geotextile must be install over the tracks during backfill manutention to avoid infiltration in the ballast.

.6 The rail-road vehicles used on tracks must be driven by a qualified person according to the "Règlement d'exploitation ferroviaire du Canada (REFC)" unless you have received a written authorisation by the CN. The use of the method must be approved by the CN before the mobilisation.

.7 The use of the premises is restricted to the areas necessary for the execution of the work and those areas made available to the Contractor for the installation of the Construction Facilities and for the storage of the equipment and materials required for the works. The Contractor shall allow access to these areas outside the work zones to the PCA to allow:

.1 Maintenance of equipment;

.2 Partial Owner occupancy, if required;

.3 Work by other contractors.

.8 Coordinate use of premises under direction of the Departmental Representative.

.9 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.10 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.11 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by the Departmental Representative.

.12 The Contractor cannot use existing structures for the execution of his work. He shall take the necessary precautions to protect existing structures and shall assume complete responsibility of any claims resulting in the damages that are attributed to him. An authorization from the Departmental Representative is necessary before any installation (fixations etc.) on an existing structure. Upon completion of the work, the existing structure must be in an equivalent or superior state than it was at the beginning of the work.

.13 The boats and the navigation within the framework of the contract must be limited to the zones envisaged in the plans. If the contractor wishes for the needs of the site to install barges these will be confined in this perimeter. Sporadic transport of barges and equipment must meet Transport Canada standards. It can in these conditions be accepted on presentation of a procedure in place.

1.10 OWNER OCCUPANCY

.1 The Owner will occupy the premises (outside the work zones) during the entire construction period for execution of normal operations.

.2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.11 PARTIAL OWNER OCCUPANCY

.1 Schedule and substantially complete designated portions of Work for Owner's occupancy prior to Substantial Performance of entire Work.

.2 Execute Certificate of Substantial Performance for each designated portion of Work prior to Owner occupancy. The Contractor must allow access to the premises to the Owner at all times.

.3 On occupancy, Owner will provide for occupied areas:

.1 Maintenance.

.2 Security.

.4 Execute Partial Interim Certificate of Completion for each designated portion of Work prior to partial Owner occupancy. Following, allow access to the premises to the Owner.

1.12 PRE-PURCHASED EQUIPMENT

.1 Not used.

1.13 OWNER FURNISHED ITEMS

.1 Not used.

1.14 ALTERATIONS, ADDITIONS, OR REPAIRS TO EXISTING BUILDING

.1 Not used.

1.15 EXISTING SERVICES

.1 Submit schedule to and obtain approval from the Departmental Representative at least ten (10) working days in advance for any shut-down or closure of active services or facilities including power and communications services. Adhere to approved schedule and provide notice to affected parties and paid for the permis costs.

.2 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

1.16 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed Shop Drawings.

.5 List of Outstanding Shop Drawings.

.6 Change Orders.

.7 Other Modifications to Contract.

.8 Field Test Reports.

.9 Copy of Approved Work Schedule.

.10 Health and Safety Plan and Other Safety Related Documents.

.11 Other documents as specified.

Part 2 Products

2.1 METALLIC RAILINGS 2 GUARDRAILS

.1 The dimensions of the elements below must be validated, with existing conditions, on site by the Contractor.

.2 Cast iron Posts :

.1 Metal posts, 1.02 meter (3'-4 ") high, weighing 30 kg (66 lbs) each.

.2 Note : Pole holes (posts) should be checked before ordering pipe sizes and boring may be required.

.3 Galvanized transom metal railing:

.1 Straight pipes with lengths of more or less 3 meters.

.1 Bottom rail: 38 mm dia. (1.5 ") ± 4mm thick wall.

.2 Top rail: 52 mm dia. (2 ") ± 4 mm wall thickness.

.4 Galvanized steel sleeves:

.1 Metal pipe in accordance with CSA Standard B63-1971 and design details.

.1 Length: 305 mm

.2 Diameter of 38 mm dia. (1.5 "): ± 30 mm dia.

.3 Diameter of 52 mm dia. (2 "): ± 38 mm dia.

.2 Each sleeve shall have: A notch at each end of 38x13 mm (bxh) at 25.4 mm (1 ") from the ends.

.5 Galvanized closing piece:

.1 Metal caps in accordance with CSA Standard B63-1971 and design details.

.1 Diameter of 38 mm dia. (1.5 ") nominal;

.2 Diameter of 52 mm dia. (2 ").

.6 Iron cast bollard

.1 The dimensions of the elements must be checked by the contractor on site with the existing.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

.1 Not used.

Part 2 Explanation of the Bid Form prices

2.1 Item 1. – Government Representative Site Office, Environment, and General Items

.1 Item 1.1 – Construction Facilities

.1 Payment item 1.1 of the *Schedule of Prices* is a fixed lump sum amount to compensate all necessary expenses incurred in the execution of the works as well as any other expenses not included in the other *Schedule of Prices* 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 Electricity, water, and lighting on site.

.2 Construction site offices; Furnishings, telephone and related services (internet, , fax, 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.

.3 Access roads including the necessary deforestation, clearing-up, removal of scrub, vines, dead wood, trees and shrub 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 junction of the crowning walls and seat on 500 mm below the wall (for estimation purpose approximatively a cleaning of 70% of the length of the wall should be consider) , the removal of fences and vines on the edge of the crowning wall, twenty-five (25) exploration wells for additional sampling of contaminated soils at the start of the project (including a characterisation plan, the location of the wells, sampling by a laboratory professional, characterisation, transmission of results accompanied by a plan and analysis certificates) the moving, the storage and replacing of urban furniture (tables, benches, garbage cans, etc.), sanitary facilities, rigid site fencing (minimum height of 2440mm) **safety buoy** must be installed around all the mobilization premise, site signs and maintenance, in accordance with the requirements of the specifications and drawings, and as directed by the Government Representative. In addition, all requirement link to the protection of the CN railroad during the contract and the temporary rail crossing are covered by this article.

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.4 The maintenance of traffic and temporary signage, including but not limited to:

.1 Maintenance and mobilization of access road;

.2 Provide and maintain construction sign for access;

.3 Maintenance of access to properties;

.4 The provision of signalers as required;

.5 Maintenance of signs and traffic lanes including inspections requested;

.6 Modification and rehabilitation of existing signage;

.7 Bilingualism of the temporary signs;

.8 As well as other costs relating to the special requirements for traffic control;

.5 The maintenance of the worksite and of its access routes.

.6 The required coordination with the City of Montreal and other stakeholders, including obtaining all necessary permits to carry out the work.

.7 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
Section 01 33 00	Submittal Procedures
Section 01 35 29.06	Health and Safety Requirements
Section 01 52 00	Construction Facilities
Section 01 52 00	Construction Facilities
Section 01 56 00	Temporary Barriers and Enclosures
Section 01 73 00	Execution
Section 01 74 11	Cleaning
Section 01 74 21	Construction/DemolitionWaste Management and Disposal
Section 01 77 00	Closeout Procedures
Section 07 78 00	Closeout Submittals

.8 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 *Schedule of Prices* .

.9 The costs of providing a security guard or other means of supervision for the site for all the duration of the contract (if required).

.10 Rental costs of land and/or space for the storage of materials.

.11 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.

.12 All fees pertaining to the supply of water and electricity for the duration of the work.

.13 Expenses for all means taken to avoid damage to earthworks, trees, shrubs, paving, bed of the river and its banks, etc.

.14 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 and damages that the Contractor caused to the site of the works, to the public or private property affected by its works.

.15 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.

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.16 Supply and installation of noise protection screens for noise generating equipment (generator, etc.)

.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.

.2 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.

.3 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 *Schedule of Prices* 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 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, plants, etc.);

.4 Temporary facilities for pollution prevention;

.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.

.2 Other progress payments under this item will be paid to a percentage consistent with the general progress of work for each progress claim period.

.3 Item 1.3 - Sediment Barrier

.1 Payment item 1.3. of the *Schedule of Prices* is per linear meter (m. Lin.) for all costs incurred for the supply and the installation of sediment barrier in accordance with the requirements of the plans and specifications

.2 Price 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:

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.1 50% of the price after the installation of the Sediment Barrier to the satisfaction of the ministry representative;

.2 50% of the price after the removal of all materials composing the Sediment Barrier, out of the work site.

.4 Item 1.4 - Turbidity curtain (confinement)

.1 Payment item 1.4 of the Schedule of Prices is per linear meter (m. Lin.) 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 plans and specifications. The payment is equivalent of the length of the reparation even if the curtain exceeds the reparation.

.2 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.

.3 The submitted price is paid as shown below:

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.1 50% of the price after the installation of the Turbidity curtain (confinement) with the satisfaction of the ministry representative;

.2 50% of the price after the evacuation of all materials composing the Turbidity curtain (confinement), out of the work site.

.5 Item 1.5 – Removal, Painting and Repositioning of Guardrails

.1 Payment item 1.5 of the *Schedule of Prices* is priced per linear meter (m. Lin.) for the removal, the surface preparation, painting and repositioning of guardrails in accordance with the requirements of the plans and specifications. A survey of the localisation of the existing guardrails in accordance with the requirements of the plans and specifications is also needed.

.2 The guardrail posts have to be removed, repainted and reinstalled. The guardrail posts are made of cast iron. **Note that the existing guardrail 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 factory.

.4 The guardrails must be removed and be disposed. The Contractor have to supply and install new guardrails of same diameter of the existing. The new guardrails must be galvanised and painted according to the specifications.

.5 Price includes, but is not limited to, the following:

.1 The preparation, presentation and correction of the shop drawings, the painting procedure, the samples and the required technical data sheets;

.2 The survey and a photographic survey of the existing guardrails

.3 Mobilization of labor, tools and equipment and hardware required for the execution of the work;

.4 The supply, painting and transportation of the new guardrails guardrail;

.5 The transport, painting and installation of the posts supply by Parks Canada (including the transport from Parks Canada warehouse for the post);

.6 The furniture, transport, painting and installation of new posts if necessary. The mold is provided by Parks Canada. 15 new units have to be fabricated.

.7 The supply, handling, transport and use of materials (anchors, grout, paint, screws, spacer, etc.);

.8 All costs incurred in the surface preparations;

.9 Leveling the guardrails, if necessary, with cementitious grout;

.10 If the guardrails are located on an existing wall the price includes removal and of 50 mm of the existing stud, grouting of the removed area and installation of new studs;

.11 Painting touch-up if necessary and application of painting on studs

.12 In the event of damage, immediately repair the affected items and at the Contractor's expense;

.13 Reaming (at the shop) of the opening on the post to allow proper installation of the guardrails without damaging the paint. The opening of the post should be verified at the shop before delivery;

.14 Any incidental expenses and coordination.

.6 Item 1.6 - Platforms and Access System

.1 Payment items 1.6.1 – Platforms and access system for crowning walls

.1 Payment item 1.7.1 of the *Schedule of Prices* is priced per linear meter (m. Lin.) of wall intervention for the supply, installation for the duration of the work and removal of the access platforms and system in accordance with the requirements of plans 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.

.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);

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.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 60% of the price after the installation of the platform with the satisfaction of the ministry representative;

.2 40% of the price after the evacuation of all materials composing the platform, out of the work site.

.7 Item 1.7 – Rail track support – Steel sheet piles

.1 Payment item 1.7 of the *Schedule of Prices* is a fixed lump sum amount for the installation of a retaining system of the rail road with steel sheet piles during the crowning wall replacement works.

.2 Price includes, but is not limited to, the following:

.1 The complete design of the system by a member of OIQ;

.2 The preparation, presentation, and correction of the design calculation notes, shop drawings and technical data sheets of all different elements of the system;

.3 Mobilization of labor, tools and equipment required for the execution of the work;

.4 The furniture, transport, and installation of the steel sheet piles;

.5 The daily survey of the train track before, during and after the works to avoid track movement;

.6 The cutting of the sheet piles 400 mm under the finished ground at the end of the works;

.7 All other requirements describe in section 31 62 16.13 *Steel sheet piles;*

.8 Any incidental expenses and coordination.

.3 The submitted price is paid as shown below for each item:

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.1 70% of the price after the installation of the steel sheet piles with the satisfaction of the ministry representative;

.2 30% of the price after cutting the sheet piles and the backfilling completion with the satisfaction of the ministry representative.

2.2 Item 2. – Replacement of the Crowning Walls

.1 Item 2.1 – Excavations and stockpiling

.1 Payment item 2.1 of the *Schedule of Prices* is priced per cubic meter (m^3) for excavated and stockpiled backfilled material. The volume shall be calculated in

accordance with the section and profile of excavation accepted by the ministry representative and the contractor excavation survey in accordance with the requirements of the plans 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 acceptation, the excavation, stockpiling and disposition procedure, and the shop drawing required for the job execution;

.3 The excavation survey in accordance with the section and profile approved;

.4 Complete removal of stumps and roots in excavation areas and the disposition;

.5 The identified excavation required for not damaging the existing dressed stones

.6 Drying and drainage of the excavation bottom;

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.7 Excavation, loading, transport and stockpiling of the backfilled material;

.8 Compaction of bottom material before installation of any new material

.9 Any incidental expenses and coordination.

.2 Item 2.2 – Disposal of Contaminated Soil

.1 Item 2.2.1 to 2.2.4 – Range <A, A-B, B-C, C+, >D

.1 Payment items 2.2.1 to 2.2.5 of the *Schedule of Prices* are priced per tonnes (t) of evacuated soil for the disposal of different types of contaminated soils range <A, A-B, B-C, C+ and >D(RBCS) in accordance with the requirements of the specifications and drawings, and as directed by the Government Representative.

.2 The amount includes, but is not limited to, the following:

.1 Disposal of contaminated soil contaminated soils <A, A-B, B-C, C+ and >D(RBCS) as directed by the Government Representative.

.2 Loading, transport off site and treatment as prescribed by Section 01 74 21 *Construction / Demolition Waste Management and Disposal* and by section 01 35 13.43*, Special project procedures for contaminated sites*;

.3 Stockpiling and off-site disposal

.4 Clean-up;

.5 Any incidental expenses and coordination.

.3 The post of disposal of contaminated soils <A includes the loading and off-site disposal of pebbles with a diameter equal to or greater than 300

mm present in the embankments and those with a diameter equal to or greater than 150 mm in the last layer of 300 mm.

.3 Items 2.3 –Demolition and/or removal of collapsed walls

.1 The line item 2.3 of the Schedule of Prices are priced per cubic meter (m^3) of concrete demolished, in accordance with the requirements of the specifications and drawings, and as directed by the Government Representative.

.2 The amount 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;

.4 The preparation, presentation, and correction of the section and typical profile of the existing concrete demolition for acceptation;

.5 The demolition of defective and sound concrete as directed by the Government Representative;

.6 Cleaning, surface preparation and disposition of debris;

.7 Cleaning the reinforcing steel to be retained;

.8 Cleaning of the concrete substrate;

.9 The collection and treatment of demolition materials as prescribed by Section 01 74 21 *Construction / Demolition Waste Management and Disposal*;

.10 Any incidental expenses and coordination.

.4 Item 2.4 - Reinforcing galvanised steel

.1 The price to the payment item 2.4, of the *Schedule of Prices* 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 This item includes also the reinforcement needed for the stairs reconstruction has shown on the drawings.

.3 Price includes, but is not limited to, the following:

.1 The preparation, presentation and correction of the Work Plan for the Installation of Steel Bars;

.2 Mobilization of labor, tools and equipment required for the execution of the work;

.3 The preparation, presentation, and correction, if required, of the shop drawings and the slip of the frames;

.4 The supply of reinforcing bars and the shaping thereof,

.5 Galvanization where stipulated in the plans and specifications;

.6 Work site coordination and required adjustment for cast-in-place elements installation and drilling (Bollards, rungs, guardrail anchors, etc.);

.7 The cuts and adjustment on site;

.8 Installation of reinforcing steel required;

.9 Any incidental expenses and coordination.

.5 Positions 2.5 – Cast-in-Place Concrete

.1 The price in item 2.5 of the Schedule of Prices is priced per cubic meter (m^3) of wall concrete, the quantities shall be calculated according to the theoretical dimensions in accordance with the requirements of the plans and specifications.

.2 This item includes the concrete for the stairs reconstruction as shown on the drawings.

.3 This item also included the concrete seat footing if necessary (see plan). The exact quantity of footing will be validated on site by the Government Representative. For estimation purpose, one hundred (100) meter linear of concrete seat footing should be planned.

.4 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 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 The supply and application of mold release agent;

.6 Supply and installation of formwork ties;

.7 The supply and application of repair mortar to the location of the formwork ties;

.8 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.

.9 Supply and installation of steel wire;

.10 The supply, transport, handling and placing of the drain 150 mm x 150 mm;

.11 The supply, transport, handling and installation of the transition details, control joints including 20M anchors;

.12 The supply, transport, handling and placing of the steel components incorporated in the concrete, as shown in the drawings;

.13 Treatment of substrate before concreting;

.14 Supply, installation, vibration, finishing, wet curing of concrete;

.15 The execution of the saw-strokes shown in the drawings;

.16 Cleaning of concrete surfaces adjacent to the concreting area;

.17 At the end of the work, off-site evacuation of the formwork materials and correction of defective repairs;

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.18 Concrete Finishing **analysis and register**

.19 Treatment of surplus materials in accordance with Section 01 74 21, *Construction / Demolition Waste Management and Disposal;*

.20 Any incidental expenses and coordination.

.6 Positions 2.6 – Mud slab

.1 The price in item 2.6 of the Schedule of Prices is priced per cubic meter (m³) of mud slab concrete needed for the elevation adjustment between the crowning wall footing and the dressed stones, the real quantity is not known and is depending on the existing. For estimation, the quantity on the schedule of prices provide a thickness **(height)** of **400** mm on all the crowning wall length to replace.

.2 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 Mobilization of labor, tools and equipment required for the execution of the work;

.3 Supply, installation and dismantling of formwork of a variable height required for the works;

.4 Treatment of substrate before concreting;

.5 Supply, installation, vibration, finishing, wet curing of concrete;

.6 The execution of the saw-strokes shown in the drawings;

.7 Cleaning of concrete surfaces adjacent to the concreting area;

.8 At the end of the work, off-site evacuation of the formwork materials and correction of defective repairs;

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.9 Concrete Finishing **analysis and register**

.10 Treatment of surplus materials in accordance with Section 01 74 21, *Construction / Demolition Waste Management and Disposal;*

.11 Any incidental expenses and coordination.

.7 Position 2.7 - Bollards

.1 The price at item 2.7 of the Schedule of Prices 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 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 All costs related to the work in section 35 59 29 - Mooring equipment;

.13 Any incidental expenses and coordination.

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.5 The submitted price is paid as shown below:

.1 100% of the price after the removal of the Bollards to the satisfaction of the ministry representative;

.8 Posts 2.8 - Rungs

.1 The price at item 2.8 of the Schedule of Prices is unit priced for the establishment of a series of steps in accordance with the requirements of the plans and specifications.

.2 The unit rungs include steps similar to the existing conditions. The sets of steps are composed with holes for the feet and smooth galvanized reinforced steel in front and on top of the walls as described on the plans. The price also includes the chemical anchors to whole the bars.

.3 The existing conditions is composed of four ranks 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 preparation, presentation, and correction of shop drawings, samples, and technical data sheets;

.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.

.9 Item 2.9- Type 1 borrowing materials, MG-20

.1 The price at item 2.9 of the Schedule of Prices is priced per tonne (t) for the borrowed materials in accordance with the requirements of the plans and specifications.

.2 This item concerned the materials whose replacing all excavated materials. No reuse of materials is expected on this contract

.3 Price includes, but is not limited to, the following:

.1 Transportation of loan materials to the site.

.2 The supply and installation of borrowed materials in accordance with the plans, specifications, and instructions of the Government Representative.

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.3 Compaction **analysis and register**

.4 Cleaning of premises;

.5 Any incidental expenses and coordination.

.10 Item 2.10 - Perforated drain 150 mm and geotextile, PVC (type 1) or PVC COEX (type 1) or PE (type 2), 180 kPa min.

.1 The price at item 2.10 of the Schedule of Prices is priced per linear meter (m. Lin.) for the perforated drain in accordance with the requirements of the plans and specifications.

.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 cushion, 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.

.11 Item 2.11- Top Soil

.1 The price at item 2.11 of the Schedule of Prices is priced per square meter (m^2), based on the area covered in accordance with the requirements of the plans and specifications.

.2 Price includes, but is not limited to, the following:

.1 Stripping, loading, transport and storage of topsoil;

.2 The preparation of the ground for the placement of the topsoil;

.3 The supply of the material, loading, transport, spreading, leveling, stripping, removal of woody debris and waste, and any amendments necessary to make the material conform to plans and specifications;

.4 Any incidental expenses and coordination.

.12 Item 2.12 – Laying Sod

.1 The price at item 2.12 of the Schedule of Prices is priced per square meter (m²) for laying sod and shall be used to measure the maintenance of the sodded area during the guarantee period in square meters in accordance with the requirements of the plans and specifications.

.2 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 (including watering)

.3 Cleaning of premises;

.4 Protection and maintenance of grassed areas;

.5 First lawn mowing;

.6 Any incidental expense and coordination

.3 It is noted that only the area above the excavated trench is included in this payment item. Costs related to all other areas damaged by the work are considered miscellaneous and are included in the reclamation price.

.4 The submitted price is paid as shown below:

.1 75% of the price after initial seeding to the satisfaction of the Government Representative;

.2 25% of the price after the first lawn to the satisfaction of the Government Representative.

2.3 Item 3. - Repair of the crowning wall without overlay

.1 Item 3.1 - Cast -in-Place Concrete;

.1 The price at item 3.1 of the Schedule of Prices is priced per cubic meter (m³) of wall concrete, the quantities are calculated according to the actual quantities put in place, in accordance with the requirements of the plans and specifications.

.2 The repairs are to be done continuously on all length of selected sections.

.3 Price includes, but is not limited to, the following:

.1 The preparation, presentation and correction, if required, of the Work Plan for the demolition of the wall;

.2 Mobilization of labor, tools and equipment required for the execution of the work;

.3 The demolition of defective and sound concrete, as directed by the Government Representative;

.4 The 300 mm excavation at the back of the wall, if applicable;

.5 The loading, transport and stockpiling of the top soil for characterisation before evacuation out of the site;

.6 Loading, transport and storage of excavated material;

.7 Loading, transport, installation of the embankment and compaction with the excavated material;

.8 Saw lines required;

.9 Cleaning of reinforcing steel to be retained;

.10 Cleaning and surface preparation,

.11 Supply, installation and dismantling of formwork;

.12 Supply and installation of chamfers;

.13 The supply and application of mold release agent;

.14 Supply and installation of formwork ties;

.15 The supply, transport, handling and placing of the steel components incorporated in the concrete, as shown in the drawings;

.16 Supply, installation, vibration, finishing, wet curing of concrete (including additional concrete at bollard localisation);

.17 The collection of demolition materials, their disposal outside the building site and their treatment in accordance with the requirements of Section 01 74 21, *Construction/Demolition Waste Management and Disposal;*

.18 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 ministry representative;

.2 Item 3.2 - Reinforcing galvanised steel

.1 The price to the payment item 3.2 of the *Schedule of Prices* 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 for the Installation of Steel Bars;

.2 Mobilization of labor, tools and equipment required for the execution of the work;

.3 The preparation, presentation, and correction, if required, of the shop drawings and the slip of the frames;

.4 The supply of reinforcing bars and the shaping thereof,

.5 Galvanization where stipulated in the plans and specifications;

.6 Work site coordination and required adjustment for cast-in-place elements installation and drilling (Bollards, rungs, guardrail anchors, etc.);

.7 The cuts and adjustment on site;

.8 Installation of reinforcing steel required;

.9 Any incidental expenses and coordination.

.3 Items 3.3 - Chemical anchorage

.1 The price to the payment item 3.3 of the Schedule of Prices is priced per unit of chemical anchor, in accordance with the requirements of the plans 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;

.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;

.6 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;

.4 Posts 3.4 - Rungs

.1 The price at item 3.4 of the Schedule of Prices is priced per unit for the establishment of a series of steps in accordance with the requirements of the plans and specifications.

.2 The unit rungs include steps similar to the existing conditions. The sets of steps are composed with whole for the feet and smooth galvanized reinforced steel in front and on top of the walls as described on the plans. The price also includes the chemical anchors to whole the bars.

.3 The existing conditions is composed of four ranks 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 preparation, presentation and correction, if required, of shop drawings, samples and technical data sheets;

.2 Mobilization of labor, tools and equipment required for the execution of the work;

.3 The supply, transport, handling and installation of steps including new anchorages of the same size as the existing one;

.4 Any incidental expenses.

.5 Item 3.5 – Laying Sod

.1 The price at item 3.5 of the Schedule of Prices is priced per square meter (m²) for laying sod and shall be used to measure the maintenance of the sodded area during the guarantee period in square meters in accordance with the requirements of the plans and specifications.

.2 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 (including watering)

.3 Cleaning of premises;

.4 Protection and maintenance of grassed areas;

.5 First lawn mowing;

.6 Any incidental expense and coordination.

.3 It is noted that only the area above the excavated trench is included in this payment item. Costs related to all other areas damaged by the work are considered miscellaneous and are included in the reclamation price.

.4 The submitted price is paid as shown below:

.1 75% of the price after initial seeding to the satisfaction of the Government Representative;

.2 25% of the price after the first lawn to the satisfaction of the Government Representative.

2.4 Item 4. – 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 chapeter 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 obligatory bilinguals.

.1 Item 4.1- Traffic Maintenance and Temporary Signage

.1 The price at item 4.1 is a daily price for traffic and temporary signaling for the pedestrian access linking Charlevoix and des Éclusiers streets during the works as showed on the drawings and all other pedestrian or biking access possibly needed during the works. in accordance with the requirements of the plans and

specifications. This item is used only for temporary on St-Patrick Street while deforesting trees.

.2 Price includes, but is not limited to, the following:

.1 The preparation, presentation and correction of all signaling plans. The plans must be signed by an engineer member of the "ordre des ingénieurs du Québec";

.2 Acquiring all the municipal permits related to road restriction on St-Patrick street;

.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 this document;

.4 Maintenance of circulation and temporary signs during the works;

.5 The provision of signalers as required;

.6 Temporary signaling, tools, equipment, vehicle and manpower required for the complete execution of all works;

.7 Bilingualism of the temporary signs;

.8 Modification and rehabilitation of existing signage;

.9 Maintenance of access to properties;

.10 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 4.2 - Special Panels

.1 The price at item 4.2 of the Schedule of Prices is priced per square meter (m²) 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;

.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 Any incidental expenses and coordination.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 31 11 00 – *Clearing and Grubbing*

.2 Section 31 32 19.01 – *Geotextiles*

.3 Section 31.62.16.13 – *Steel Sheet Piles*

.4 Section 32 91 19.13 – *Topsoil Placement and Grading*

.5 Section 32 92 23 – *Sodding*

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C136-05, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D422-632002, Standard Test Method for Particle-Size Analysis of Soils.

.4 ASTM D698-00ae1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3).

.5 ASTM D1557-02e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3) (2,700 kN-m/m^3).

.6 ASTM D4318-05, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

.3 Canadian Standards Association (CSA International)

.1 CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.1 CSA-A3001-03, Cementitious Materials for Use in Concrete.

.2 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.4 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 DEFINITIONS

.1 Excavation classes: two classes of excavation will be recognized; common excavation and rock excavation.

.1 Rock: solid material in excess of 1.00 m^3 and which cannot be removed by means of heavy duty mechanical excavating equipment with 0.95 to 1.15 m^3 bucket. Frozen material not classified as rock.

.2 Common excavation: excavation of materials of whatever nature, which are not included under definitions of rock excavation.

.2 Unclassified excavation: excavation of deposits of whatever character encountered in Work.

.3 Topsoil:

.1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

.2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 25 millimeters 1 inch in any dimension.

.4 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.5 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.

.6 Recycled fill material: material, considered inert, obtained from alternate sources, and engineered to meet requirements of fill areas are not allowed in this project

.7 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Frost susceptible materials:

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D422 ASTM C136: Sieve sizes to CAN/CGSB-8.1 CAN/CGSB-8.2.

.2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45

.3 Coarse grained soils containing more than 20 % by mass passing 0.075 mm sieve.

.8 Unshrinkable fill: very weak mixture of cement, concrete aggregates and water that resists settlement when placed in utility trenches, and capable of being readily excavated.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - *Submittal Procedures.*

.2 Quality Control: in accordance with Section 01 45 00 - *Quality Control.*

.1 Submit a **survey of existing conditions rapport** as described in *item 1.7 EXISTING CONDITIONS* of this Section.

.2 Submit for review by the Departmental Representative proposed dewatering heave prevention methods as described in PART 3 of this Section.

.3 Submit to the Departmental Representative written notice at least seven (7) days prior to excavation work, to ensure cross sections are taken.

.4 Submit to the Departmental Representative written notice when bottom of excavation is reached.

.5 Submit to the Departmental Representative testing inspection results report as described in PART 3 of this Section.

.3 Documents and Workshop Drawings

.1 Submit work shop drawings for cofferdam and excavation, trenching and backfilling work to the Departmental Representative for approval, signed by a qualified engineer, a member of the *Ordre des ingénieurs du Canada Quebec*.

.2 Prior to commencement of work, submit documentation with regards to the location of underground utilities.

.4 Procedure

.1 Submit to the Departmental Representative, for review, the procedure for storing excavation materials to be used for the backfill.

.5 Technical Specifications

.1 Before commencing the work referred to in this section, submit a list of the main equipment and materials

.6 Samples:

.1 Inform the Departmental Representative at least two (2) weeks prior to beginning Work, of proposed source of fill unshrinkable fill materials and provide access for sampling.

.2 Ship samples prepaid to the Departmental Representative, in tightly closed containers to prevent contamination and exposure to elements.

1.5 QUALITY ASSURANCE

.1 Quality control: in accordance with Section 01 45 00 – *Quality Control.*

.2 Qualification Statement: submit proof of insurance coverage for professional liability prior to commencing work

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Materials testing and compaction testing shall be carried out by a Laboratory designated by the Contractor . A registry of all the essays must be provided by the Contractor.

.3 No more than one (2) week prior to the commencement of backfilling or filling provide the designated testing organization with the descriptive records and grading of the proposed fill material for the work.

.4 Notify the Departmental Representative in writing not later than forty-eight (48) hours prior to commencing backfilling or filling with the approved materials so that the designated testing laboratory can perform the necessary compaction tests.

.5 Submit design and supporting data at least two (2) weeks prior to beginning Work.

.6 Design and supporting data submitted to bear stamp and signature of qualified Professional Engineer, member of the *Ordre des ingénieurs du Québec*.

.7 Retain the services of a recognized, competent engineer, member in good standing of the *Ordre des ingénieurs du Québec* (where the work will be performed) for the design and inspection of cofferdams, shoring works, bracing works, and underpinning works used during the performance of Work.

.8 The Contractor must perform tests on excavated soils and submit a written report to validate the possibility of using the excavated soils. Do not use the excavated soils before receiving the official acceptance written notice of the report by the Departmental Representative.

.9 Health and Safety Requirements:

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse recycling in accordance with Section 01 74 21 - *Construction/Demolition Waste Management and Disposal.*

1.7 EXISTING CONDITIONS

.1 Buried services:

.1 Before commencing work verify establish location of buried services on and adjacent to site.

.2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.

.3 Remove obsolete buried services within 2 m of foundations: cap cut-offs.

.4 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

.5 Prior to beginning excavation Work, establish location and state of use of buried utilities and structures, notify the Departmental Representative, and clearly mark such locations to prevent disturbance to services during Work.

.6 Confirm locations of buried utilities by careful test excavations soil hydrovac methods.

.7 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated.

.8 Record location of maintained, re-routed and abandoned underground lines.

.9 Confirm locations of recent excavations adjacent to area of excavation.

.10 Take a photographic and natural ground level survey.

.2 Existing buildings and surface features:

.1 Conduct, with the Departmental Representative, condition survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks monuments, various street furniture, street lamps (Concrete foundation, fixtures, and others) which may be affected by Work.

.2 Protect existing buildings and surface features from damage while Work is in progress. In event of damage, immediately undertake repairs as directed by the Departmental Representative at the Contractor's expense.

.3 If required for excavation work, cut roots or branches according to the section's 01 35 43 "*Environmental procedures*" and according to the Departmental Representative directions.

Part 2 Products

2.1 MATERIALS

.1 Type 1 and Type 2 fill: properties to Section 31 05 16 - Aggregate Materials and the following requirements:

.1 Crushed, pit run or screened stone, gravel or sand.

.2 Gradations to be within limits specified when tested to ASTM C136 ASTM C117. Sieve sizes to CAN/CGSB-8.1 CAN/CGSB-8.2.

.3 Table:

Sieve Designation	% Passing	
	Type 1	Type 2
75 mm	-	100
50 mm	-	-
37.5 mm	-	-
25 mm	100	-
19 mm	75-100	-
12.5 mm	-	-
9.5 mm	50-100	-
4.75 mm	30-70	22-85
2.00 mm	20-45	-
0.425 mm	10-25	5-30
0.180 mm	-	-
0.075 mm	3-8	0-10

.2 Geotextiles: to Section 31 32 19.01 - Geotextiles.

Part 3 Execution

3.1 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement, sidewalk, slab and concrete walls neatly along limits of proposed excavation in order that the surface break evenly and cleanly.

.3 Temporary erosion and sedimentation protection

.1 Install geotextile sediment barriers in accordance with Section 01 35 43 - *Environmental Procedures* at locations proposing erosion risks, mostly at excavation works along the watercourse and at the perimeter of each soil piles.

3.2 PREPARATION/PROTECTION

.1 Protect existing features in accordance with Section 01 56 00 - *Temporary Barriers and Enclosures* and applicable local regulations.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to the Departmental Representative.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

.5 Protect buried services that are required to remain undisturbed.

3.3 STRIPPING OF TOPSOIL

.1 Begin topsoil stripping of areas as indicated by the plans and specifications after area has been cleared of brush, weeds, grasses, and removed from site.

.2 Stripping must be done in such a way as to avoid contaminating the topsoil usable for landscaping with underlying materials of different composition. Thus, the depth of clearing varies per the nature of the terrain.

.1 Do not mix topsoil with subsoil.

.3 The Contractor shall, at its own expense, recover and store all the topsoil required for its work and provide the necessary space for storage

.1 Stockpile height not to exceed 2 m and should be protected from erosion.

.2 Supply a localisation plan of soil piles on the site.

.4 If organic soils cannot be used for landscaping, the Contractor shall dispose them.

3.4 COFFERDAMS, SHORING, BRACING AND UNDERPINNING

.1 Maintain sides and slopes of excavations in safe condition by appropriate methods and in accordance with Section 01 35 29.06 - Health and Safety Requirements and the Health and the Canada Labour Code.

.1 Where conditions are unstable, the Contractor’s engineer shall verify and advise methods.

.2 During backfill operation:

.1 Unless otherwise indicated or directed by the Departmental Representative, remove sheeting and shoring from excavations.

.2 Do not remove bracing until backfilling has reached respective levels of such bracing.

.3 Pull sheeting in increments that will ensure compacted backfill is maintained at elevation at least 500 mm above toe of sheeting.

.3 Upon completion of substructure construction:

.1 Remove cofferdams, shoring and bracing.

3.5 DEWATERING AND HEAVE PREVENTION

.1 Keep excavations free of water while Work is in progress.

.2 Provide for the Departmental Representative's review, approval details of proposed dewatering or heave prevention methods, including dikes, well points, and sheet pile cut-offs.

.3 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

.1 Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.4 Protect open excavations against flooding and damage due to surface run-off.

.5 Dispose of water in accordance with Section 01 35 43 - *Environmental Procedures* collection runoff areas and in manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

3.6 EXCAVATION

.1 Advise, by writing, the Departmental Representative at least seven (7) working days in advance of excavation operations for initial cross sections to be taken.

.2 Excavate to lines, grades, elevations and dimensions as indicated.

.3 Keep the excavated and stockpiled materials at a safe distance away from edge of trench as directed by the Departmental Representative and the approved soils piles localisation plan

.4 Restrict vehicle operations directly adjacent to open trenches.

.5 All materials in this Contract will be replaced with type 1 MG-20 borrowing materials as directed by the Departmental Representative.

.6 Do not obstruct flow of surface drainage or natural watercourses.

.7 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.8 Notify the Departmental Representative when bottom of excavation is reached.

.9 Obtain the Departmental Representative's approval of completed excavation.

.10 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by the Departmental Representative.

.11 Correct unauthorized over-excavation as follows:

.1 Fill under other areas with granular backfill (Type 2) compacted to not less than 90 % of corrected Standard Proctor maximum dry density.

.2 If excavated bottom materials have been stirred, compact them to a density at least equal to that of the unmovable soil.

.12 Install geotextiles, immediately after excavation, in accordance with the Departmental Representative and Section 31 32 19.01 - *Geotextiles.*

3.7 STOCKPILING

.1 The contractor has, at its own expense, to recover and stockpile all the backfill material needed for the works and get the locations for stockpile.

.1 Stockpile the granular material to prevent segregation.

.2 The contractor has to take the necessary measure to make sure the compactable excavation material, stockpiled, are protected from bad weather and can be used as backfill.

.3 The contractor has to expect a minimum of three (3) working days delay before receiving the additional excavated soil qualification results by the soil laboratory mandated by Canada Park Agency's. All other tests are at the contractor charge.

.4 Take the appropriated control measure against erosion and sedimentation, in accordance to section 01 35 43 - *Environmental_procedures,* to prevent the migration of sediment off the work site limits et towards water streams.

3.8 FILL TYPES AND COMPACTION

.1 Use types of fill as indicated or specified below. Compaction densities are percentages of maximum densities obtained from ASTM D1557.

.1 Use Granular backfill (Type 2) as indicated on the plans, fill and compact to 90 %.

.2 Use recoverable material from cuttings as indicated in Plans and compact up to 90%.

.2 All groundfill materials shall be deposited and applied in uniform layers up to 300 mm thick after settlement. The diameter of the stone present in the embankments must not exceed the thickness of the layer; 300 mm. The diameter of the stones must not exceed the thickness of the layer. In addition, the diameter for the last 300 mm must be less than 150 mm. The Contractor must dispose of stones larger than above mentioned outside the building site. The payment for the disposal of the stones must be provided at the disposal post of the contaminated soils <A.

3.9 BACKFILLING

.1 Do not proceed with backfilling operations until completion of following:

.1 The Departmental Representative has inspected and approved installations.

.2 Inspection, testing, approval, and recording location of underground utilities.

.3 Removal of concrete formwork.

.4 Removal of shoring and bracing; backfilling of voids with satisfactory soil material.

.2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.3 Do not use backfill material which is frozen or contains ice, snow or debris.

.4 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.

.5 Backfilling around installations:

.1 Place bedding and surround material as specified elsewhere.

.2 Do not backfill around or over cast-in-place concrete within seventy-two (72) hours after placing of concrete.

.3 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:

.1 Permit concrete to cure for minimum fourteen (14) calendar's days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from the Departmental Representative;

.2 If approved by the Departmental Representative, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Departmental Representative DCC Representative Departmental Representative.

.6 Install drainage filter system in backfill as indicated as directed by the Departmental Representative.

3.10 RESTORATION

.1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21 - *Construction/Demolition Waste Management and Disposal,* trim slopes, and correct defects as directed by the Departmental Representative.

.2 The final leveling shall cover the alterations to be made to render the profiles in accordance with the theoretical longitudinal and transverse lines and all the work required for the cleaning and restoration of the premises.

.1 In accordance with sections 32 91 19.13 – *Topsoil placing and grading*, 32 92 19.16 - *Hydraulic seeding* and 32 92 23 – *Sodding.*

.2 Return pavements affected by work to condition and level prior to start of work, taking care to respect the original thickness of these structures.

.3 Clean and rehabilitate areas affected by work as instructed by Departmental Representative and in accordance with 01 74 11 – *Cleaning.*

END OF SECTION