

<u>DIVISIONS</u>	<u>SECTIONS</u>	<u>PAGE NUMBER</u>
<u>DIVISION 01</u>	General Requirements	
	01 11 01 Work description summary	2
	01 33 00 Submittal Procedures	2
	01 35 29.06 Health and Safety Requirements – Dredging	5
	01 35 43 Environmental Procedures	2
	01 52 00 Site Facilities	1
<u>DIVISION 35</u>	Waterways and Marine Construction	
	35 20 24 Dredging	11
<u>APPENDICES</u>		
Appendix 1	Table of approximate sediment distributions and quantities to be dredged	1
Appendix 2	Graphical representation of sectors identified for this project	1
Appendix 3	Locations and descriptions of M-02, M-27, S-17, T-02, T-06, T-11, T-16 and X-04 disposal areas	8
Appendix 4	Description of ASCII format (x, y, z) that will be used for data transfer	1
Appendix 5	Reference: Environmental Impact Assessment (EIA) (2019-2023), Chapter 7 Mitigation Measures, Article 7.1 Preventive Actions, GHD Consultants Ltd.	4
Appendix 6	Information on various horizontal and vertical reference systems	6

END OF TABLE OF CONTENTS

Part 1 General

1.1 SECTION CONTENT

- .1 Work covered by contract documents
- .2 Contractor use of site

1.2 PRECEDENCE

- .1 The sections of Division 01 take precedence over the technical sections in other divisions of this project manual.

1.3 RELATED SECTIONS

Section 35 20 24 – Dredging

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- .1 The work involves maintenance dredging in the St. Lawrence Seaway at various locations between Montreal and Saint-Antoine in accordance with the instructions provided herein. The work will be performed over one dredging period as specified in the Bid and Acceptance form (BA).
- .2 The work, paid on an hourly basis, will consist of dredging scattered shoals between Montreal (buoy M195) and Deschaillons (buoy D18). There will be roughly 90 hours (h) of dredging operations, 10 of them at Deschaillons. Optionally, an additional 50 or so hours (h) will be required between Montreal (buoy M195) and Batiscan (buoy D56) and between Deschaillons (buoy D18) and St-Antoine (3 km downstream of buoy Q16).
- .3 The aforementioned work will consist of dredging all Class B sediments above the prescribed dredging levels, usually from upstream to downstream, to the satisfaction of the CCG Technical Authority who will be on board during all works. The scattered shoals to be dredged between Montreal and St-Antoine will be identified and located just before work begins. A diagram of the sector is contained in Appendix 2.
- .4 Sediment may be deposited in any of the 8 disposal areas set out in the specifications. However, the Contractor must use the T-06 disposal area only for rocks with a diameter of 30 cm or more. Disposal/dumping areas are shown in Appendix 3 for information only.
- .5 Grades and dredging times for the sites in question are listed in Appendix 1.
- .6 The scattered shoals to be dredged are directly tied to annual sedimentation and the resulting safety hazards for waterway users.

1.5 CONTRACTOR USE OF SITE

- .1 The Contractor must take all required safety measures and precautions to protect people and property from accidents or damage that may occur while the work is performed.

- .2 The Contractor must perform the work in a way that does not interfere with normal operations or compromise the safety of users and their access to the St. Lawrence Seaway. It must make every effort to ensure all commercial vessel seaway encounters are safe. The Contractor must also leave at least half the width of the channel open for navigation and communicate properly at all times with Canadian Coast Guard (CCG) Marine Traffic Regulators (MCTS) and ship pilots.

Part 2 Products

2.1 N/A

.1 N/A

Part 3 Execution

3.1 N/A

.1 N/A

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Public Services and Procurement Canada (PSPC)
 - .1 PSPC, Standard Acquisition Clauses and Conditions (SACC) Manual (see tender document)

1.2 ADMINISTRATIVE MATTERS

- .1 In submitting required documents to the Departmental Representative for approval, The Contractor must do so promptly and in a predetermined order to avoid work delays. Failure to submit in ample time is not considered sufficient reason for extension of contract time and no claim for extension by reason of such default will be allowed.
- .2 The Contractor must not start work for which documents are to be filed until all submitted documents are reviewed.
- .3 Drawings and data sheets must be in SI metric units.
- .4 The Contractor is responsible for the documents submitted and must review them before providing them to the Departmental Representative. This helps the Contractor confirm that work requirements have been or will be determined and verified and that each document has been reviewed and found compliant with contract and project requirements. Documents that are not stamped, signed, dated, and identified for the specific project will be returned without being reviewed and deemed to be rejected.

The Contractor must notify the Departmental Representative in writing, at the time of submission, of any deviations from contract requirements and explain the reasons for said deviations.
- .5 The fact that the documents submitted are reviewed by the Departmental Representative does not relieve the Contractor of responsibility to submit complete and accurate documentation in accordance with contract requirements.
- .6 Keep a reviewed and verified copy of each submitted document on site.
- .7 Submitted documents must be accompanied by a letter of transmittal containing the following information:
 - .1 Date
 - .2 Project title and number
 - .3 Contractor's name and address
 - .4 Designation of each document and number of documents submitted
 - .5 Any other relevant data

1.3 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after the contract is awarded, provide the Departmental Representative with documents required by the public agency with jurisdiction over worker protection in the event of a workplace accident.

Part 2 Products

- 2.1** N/A
- .1 N/A

Part 3 Execution

- 3.1** N/A
- .1 N/A

END OF SECTION

Part 1 General

RELATED REQUIREMENTS

- .1 Section 35 20 24 – Dredging

1.2 REFERENCES

- .1 Province of Quebec
Act respecting occupational health and safety, RSQ, c S-2.1
Safety Code for the Construction Industry, RRQ, c S-2.1, r.4

1.3 SUBMITTAL PROCEDURES

- .1 Submit required documents and samples pursuant to Section 01 33 00 – Submittal Procedures.
- .2 As set out in “GENERAL REQUIREMENTS,” provide the Departmental Representative (and CNESST, where required) with the site-specific prevention program at least 10 days before work begins.
- .3 The Departmental Representative will review the Contractor’s prevention program for the site and provide feedback within 10 business days of receiving it. When necessary, the Contractor will revise its prevention program and re-submit it to the Departmental Representative within five days of receiving the representative’s feedback. The Departmental Representative reserves the right not to authorize the start of work on site until the program content is deemed satisfactory. The Contractor must also update its prevention program and re-submit it to the Departmental Representative if the scope of the work changes, the Contractor’s work methods differ from its initial forecasts, or any new conditions arise.
- .4 The Departmental Representative’s review of the Contractor’s site prevention program should not be seen as an approval of said program and does not in any way limit the Contractor’s overall responsibility for health and safety during the construction period.
- .5 Give the Departmental Representative weekly reports from site health and safety inspections carried out by the Contractor’s authorized representative.
- .6 Submit to the Departmental Representative, within 24 hours, a copy of any inspection report, notice of correction, or recommendations issued by federal, provincial, or territorial health and safety inspectors.
- .7 Submit to the Departmental Representative, within 24 hours, an investigation report for any accident involving injury and any incident exposing a potential hazard.
At minimum, the investigation report must include:
 - .1 The date, time, and place of the accident
 - .2 The name of the sub-contractor involved
 - .3 The number of people involved and the condition of the injured parties
 - .4 The names of witnesses
 - .5 A detailed description of tasks performed at the time of the accident
 - .6 Equipment used to carry out tasks performed at the time of the accident

- .7 Corrective action taken immediately after the accident
- .8 Causes of the accident
- .9 Preventive measures put in place to avoid similar accidents in future
- .8 Provide WHMIS Material Safety Data Sheets to the Departmental Representative pursuant to Section 01 33 00 – Submittal Procedures. The Contractor must also keep a copy of these sheets on site.
- .9 Medical supervision: Where a law, regulation, or safety program requires it, submit medical supervision certificates for site personnel before work begins. Give the Departmental Representative an additional certificate for any new site employee.
- .10 Submit an emergency response plan to the Departmental Representative along with the prevention program. The response plan must cover the items set out in this section under “GENERAL REQUIREMENTS.”
- .11 Give the Departmental Representative a copy of site worker training certificates, including the following (where applicable):
 - .1 First Aid and CPR in the Workplace
 - .2 Work Likely to Release Asbestos Dust (mandatory for all work where asbestos is present)
 - .3 Work in Confined Spaces (mandatory for all work involving confined spaces)
 - .4 Lock-up Procedures (mandatory for all work where materials must be locked up)
 - .5 Safe Operation of Forklifts (mandatory for all work where forklifts are used)
 - .6 Safe Operation of Elevating Work Platforms (mandatory for all work where elevating platforms are used)
 - .7 Any other training required by regulation or under the prevention program
- .12 Engineering Plans and Compliance Certificates: The Contractor must provide the Departmental Representative and the *Commission des normes, de l'équité, de la santé et de la sécurité du travail* (CNESST) with a copy, signed and sealed by an engineer, of all plans required under the *Safety Code for the Construction Industry* (S-2.1, r.4) or under another law, regulation, or clause of the specifications or contract. It must also provide a compliance certificate signed by an engineer once the structure or facility in question is completed and before anyone uses it. A copy of these documents must be available on site at all times.

1.4 NOTICE OF SITE OPENING

- .1 Before work begins, send CNESST a notice of site opening. Send the Departmental Representative a copy of said notice along with CNESST's return receipt.
- .2 A notice of site closure must be sent to CNESST when all work is finished, with a copy going to the Departmental Representative.
- .3 The Contractor must act as principal contractor at all times within the site and anywhere else it performs work for the project. It must also acknowledge the responsibility of the principal contractor and self-identify as such in the notice of site opening it sends to CNESST.
- .4 The Contractor must agree to properly divide up and identify the site so that time and space is effectively allocated at all times during the project.

1.5 RISK/HAZARD ASSESSMENT

- .1 Conduct a site safety risk/hazard assessment for work to be performed.

1.6 MEETINGS

- .1 Convene and oversee a health and safety meeting with the Departmental Representative before the work starts.
- .2 A Contractor representative with decision-making power must attend all meetings where site health and safety is discussed.
- .3 If it is expected that 25 or more workers will be on site at any one time during the project, the Contractor must create a work site committee and hold meetings as required by the *Safety Code for the Construction Industry* (S-2.1, r. 4). The Departmental Representative must be given a copy of all minutes within five days after each meeting.

1.7 REGULATORY REQUIREMENTS

- .1 Adhere to all laws, regulations, and standards governing the work performed.
- .2 Follow prescribed standards and regulations to ensure work proceeds normally at sites contaminated by hazardous or toxic materials.
- .3 Always use the latest version of standards cited in the *Safety Code for the Construction Industry* (S-2.1, r.4), regardless of the date indicated in the Code.

1.8 COMPLIANCE REQUIREMENTS

- .1 Comply with the *Act respecting occupational health and safety* (RSQ, c S-2.1), the *Safety Code for the Construction Industry* (S-2.1, r.4), and all requirements of the present specifications.

1.9 RESPONSIBILITIES

- .1 The Contractor must accept and assume all tasks and obligations normally assigned to the principal contractor under the *Act respecting occupational health and safety* (RSQ, c S-2.1) and the *Safety Code for the Construction Industry* (c S-2.1, r.4).
- .2 The Contractor is responsible for the health and safety of people on site, protecting property on site, and protecting people and the environment in areas adjacent to the site if they are affected by the work.
- .3 Whatever the site's size and location, the Contractor must put up clear physical boundary markers and meet specific regulatory requirements in this regard. The Departmental Representative must be informed of all means used to mark site boundaries.
- .4 Comply with and ensure employees comply with safety requirements set out in local, territorial, provincial, and federal laws and regulations, orders, contract documents, and the site prevention program.

1.10 WORK PERFORMED BY CONTRACTORS

- .1 The Contractor must take all necessary steps to protect the health and safety of outside contractors who are not under contract with it but have been mandated by the Departmental Representative to perform certain tasks. Outside contractors must in turn submit to the authority of the Contractor (principal contractor). To this end, the

Contractor must sign a subordination agreement with each outside contractor and give it to the Departmental Representative before the outside contractor's work begins (see OSH SUBORDINATION AGREEMENT).

1.11 GENERAL REQUIREMENTS

- .1 Before starting work, prepare a site-specific prevention program based on a risk/hazard pre-assessment as per this section's clauses on "RISK/HAZARD ASSESSMENT" and "WORK SITE HAZARDS." Implement the program and ensure compliance in every respect until all site personnel are demobilized. The prevention program must take the project's unique features and issues into account and cover all work performed at the site.
At minimum, the prevention program must include:
 - .1 The company's health and safety policy
 - .2 A description of project stages
 - .3 The project's total cost, timeframe, and expected manpower curve
 - .4 A chart of health and safety responsibilities
 - .5 The site's physical and material layout
 - .6 A description of risks for each project stage along with corresponding preventive measures and implementation procedures
 - .7 A description of preventive measures for the site-specific hazards set out in "WORK SITE HAZARDS"
 - .8 A description of preventive health and safety measures at the work site for employees and/or the public as set out in "SPECIFIC HEALTH AND SAFETY REQUIREMENTS FOR SITE OCCUPANTS AND THE PUBLIC"
 - .9 Required training
 - .10 Accident/injury procedures
 - .11 A written commitment from all stakeholders to adhere to and follow the prevention program
 - .12 A site inspection checklist based on preventive measures
 - .13 An emergency response plan (ERP) that must include at least the following:
 - .1 A site evacuation procedure
 - .2 A list of emergency resources (police, fire, ambulance, etc.)
 - .3 A list of responsible persons for the site
 - .4 A list of first aiders
 - .5 A chart of communications and contacts (site manager, Departmental Representative, etc.)
 - .6 Required training for those in charge of implementing the ERP
 - .7 Any other information deemed necessary given the site's characteristics
 - .14 Where applicable, the Departmental Representative will provide site evacuation procedures to the Contractor. The Contractor must then align the site and construction area procedures and return them to the Departmental Representative.
- .2 The Departmental Representative may provide written feedback if there are problems or concerns with the prevention program and require that the program be revised to address the issues.

- .3 In addition to the prevention program, during the project the Contractor must develop and provide the Departmental Representative with specific written procedures when any task involves a high risk of accidents (e.g., demolition, special installations, lifting, confined space entry, power cuts, etc.) or when the Departmental Representative requests it)
- .4 The Contractor must plan and organize work in a way that helps eliminate sources of risk or promote collective protection so as to minimize the use of personal protective equipment.
- .5 Equipment, tools, or means of protection that cannot be set up or used without compromising the health and safety of workers or the public will be deemed unsuitable for the job.
- .6 All mechanical equipment (devices for lifting people or material, excavators and backhoes, concrete pumps, concrete saws, etc.) must be inspected before being delivered to the site. For each piece of equipment, the Contractor must obtain an inspection certificate signed by a mechanic and dated less than a week before the equipment arrives. The certificate must be kept on site so it can be provided to the Departmental Representative on request.
- .7 For equipment to lift people or material, ensure all inspections (daily, periodic, annual, etc.) are conducted as required under current standards and be prepared to give a copy of the inspection certificate to the Departmental Representative on request.
- .8 If the Departmental Representative suspects there is a malfunction or an accident risk, the representative may at any time order that all equipment be immediately shut down and that an inspection be conducted by a specialist of the representative's choosing.
- .9 The Departmental Representative must be consulted about the location of on-site gas cylinders and tanks.

1.12 WORK SITE HAZARDS

- .1 In addition to risks involved in performing the tasks in question, workers will be exposed to the following inherent work site risks.
The site where the work takes place will have:
 - .1 Confined spaces
 - .2 A body of water nearby
- .2 The Contractor must conduct a site risk assessment to confirm this information and see if other risks are present. Its prevention program must cover all identified risks.

1.13 UNFORESEEN RISKS/HAZARDS

- .1 When a source of risk not specified in the contract or revealed in the site pre-inspection is exposed by or during the work in question, the Contractor must immediately halt the work, inform the site health and safety officer, set up temporary protective measures for workers and the public, and notify the Departmental Representative both verbally and in writing. The Contractor must then amend the prevention program as needed and implement safety measures so work can resume.

1.14 HEALTH AND SAFETY OFFICER

- .1 If the site meets the criteria set out in section 2.5.3 of the *Safety Code for the Construction Industry* (S-2.1, r.4), the Contractor must hire a qualified, authorized, full-time safety officer as soon as the project starts. The safety officer, tasked solely with managing site health and safety, must:
 - .1 Have a CNESST safety officer certificate
 - .2 Have practical experience at a site whose activities and operations are similar to those of the current project
 - .3 Have practical knowledge of workplace health and safety regulations
 - .4 Be responsible for the Contractor's workplace health and safety training and make sure only those who successfully complete the required training can access the site to perform the work
 - .5 Be responsible for implementing, monitoring, and ensuring full compliance with the Contractor's work site health and safety plan
 - .6 Be on site at all times while work is being performed
 - .7 Inspect work to ensure it meets all regulatory, contract, and prevention program requirements
 - .8 Keep a daily record of safety officer activities and give a copy to the Departmental Representative at least once a week
- .2 The Departmental Representative must be given a copy of the safety officer's certificate before the work starts.
- .3 When a safety officer does not need to be hired, or is hired by the Departmental Representative, the Contractor must appoint a suitable qualified person as health and safety officer and supervisor regardless of the site's size or number of workers. The person must be on site at all times and able to take all necessary steps to protect property and the health and safety of people on or near the site that may be affected by the work. The Contractor must give the person's name to the Departmental Representative before the project starts.

1.15 POSTING OF DOCUMENTS

- .1 Ensure relevant documents, articles, orders, and notices are posted on site in full view in accordance with provincial laws and regulations and in consultation with the Departmental Representative.
- .2 At minimum, the following information and documents must be displayed in a place where workers have easy access:
 - .1 Notice of site opening
 - .2 Name of principal contractor
 - .3 Company OSH policy
 - .4 Site-specific prevention program
 - .5 Emergency plan
 - .6 Minutes of construction site/workplace committee meetings
 - .7 Names of construction site/workplace committee members
 - .8 Names of first aiders

.9 CNESST action reports and correction notices

1.16 INSPECTIONS AND CORRECTIVE ACTION FOR NON-COMPLIANCE

- .1 Inspect the work site, complete the inspection checklist, and submit it to the Departmental Representative as per the article “SUBMITTAL PROCEDURES” in this section.
- .2 Immediately take the required steps to correct situations found non-compliant in the aforementioned inspections or noted by the competent authority, the Departmental Representative, or the representative’s agent.
- .3 Provide a written report to the Departmental Representative on corrective actions taken if health and safety requirements are found to be unmet.
- .4 The Contractor must grant the safety officer (or if there is no safety officer, the person responsible for health and safety) all necessary authority to order that work be stopped and resumed when the person deems it necessary or desirable for health and safety reasons. It must ensure environmental protection and the health and safety of site workers and the public take priority over project cost and timeframe issues.
- .5 The Departmental Representative or the representative’s agent may order that work be stopped if the Contractor does not take the required corrective action for conditions deemed non-compliant regarding health and safety. Without limiting the scope of the foregoing, the representative may order that work be stopped at any time if it is felt to pose a danger or risk to the environment or to the health or safety of site workers or the public.

1.17 VIOLENCE PREVENTION

- .1 At Public Works and Government Services Canada (PWGSC) sites, health and safety management includes measures to protect the psychological health of all persons accessing the work site. There is thus zero tolerance on site not just for physical violence but for verbal abuse, intimidation, and harassment. Anyone engaging in such action or behaviour will receive a warning and/or may be permanently barred from the site by the Departmental Representative.

1.18 USE OF PUBLIC ROADS

- .1 Where it is necessary to encroach on a public roadway for operational reasons or to ensure the safety of workers, occupants, or the public (scaffolding, cranes, excavation, etc.), the Contractor must obtain, at its own expense, all approvals and permits required by the competent authority.
- .2 The Contractor must install, at its own expense, all signs, barricades, and other equipment required by regulation to ensure the safety of the public and its own facilities.

1.19 FALL PREVENTION

- .1 Plan and organize work in a way that helps eliminate sources of fall hazards or promote collective protection so as to minimize the use of personal protective equipment. Where personal fall protection is required, workers must use a safety harness in accordance with CAN/CSA Z-259.10-M90. The safety belt should not be used as fall protection.
- .2 All persons who operate lift platforms (scissor lift, telescopic mast, articulated mast, rotating mast, etc.) must be trained in their use.
- .3 Safety harnesses must be used on all telescopic, articulated, or rotating mast lift platforms.
- .4 Mark out a hazard area around each lift platform.
- .5 Any opening in a floor or roof must be surrounded by a guardrail or protected by a fixed cover that can withstand loads to which it may be subject, regardless of the size of the opening and the height of the potential drop.
- .6 Any person working within two metres of a place with a fall risk of three metres or more must use a safety harness pursuant to regulatory requirements, unless a guardrail or other building element provides an equivalent level of safety.
- .7 Regulatory requirements notwithstanding, the Departmental Representative may require that guardrails be installed or safety harnesses be used in certain special situations where the fall risk is less than three metres.

1.20 WORK PERFORMED NEAR A BODY OF WATER

- .1 For all work performed near a body of water (including work above water, on a wharf, along a water body, etc.), the Contractor must meet the requirements set out in the following paragraphs and in section 2.10.13 of the *Safety Code for the Construction Industry*.
- .2 The Contractor must plan its operations so as to implement safety measures that will keep workers from falling in the water. These measures should take precedence over the wearing of lifejackets.
- .3 Before the project starts, provide the Departmental Representative with the following documents. At minimum, each document must contain the information required under section 11 of the *Safety Code for the Construction Industry*:
 - a. Description of the body of water
 - b. Description of work performed near the body of water
 - c. Water transportation plan adapted to the work and the characteristics of the body of water
 - d. Rescue plan adapted to the work and the characteristics of the body of water
- .4 If there is a chance that all or part of the work will be done in winter, the safety measures set out in the required documents above must be revised accordingly.
- .5 The Contractor must provide the Departmental Representative with training certificates required under section 11.2 of the *Safety Code for the Construction Industry* for:
 - a. The person assigned to prepare the aforementioned required documents
 - b. Each person in charge of transport or rescue operations

- .6 If the rescue plan includes the use of a boat, the Contractor must provide the Departmental Representative with the rescue attendant card or certificate of competency issued by Transport Canada.
- .7 The Contractor's weekly inspection checklist must include the devices required under sections 11.4 and 11.5 of the *Safety Code for the Construction Industry*.
- .8 Ensure that a rescue boat, moored and in the water, is available at each location where a worker could fall in the water. However, a boat can serve several locations on one site if the distance between the boat and each location is less than 30 m.
- .9 When the work site is a wharf, dock, pier, quay, or similar structure, ladders with at least two (2) rungs below the water's surface must be installed on the front of the structure at 60-metre intervals.

1.21 OSH SUBORDINATION AGREEMENT

See the pages below for the agreement to be completed, a copy of which must be given to the Departmental Representative.

OSH SUBORDINATION AGREEMENT	
Project: _____ Address: _____	
EXTERNAL CONTRACTOR I hereby agree to submit to the authority of (name of principal contractor) _____, principal contractor for the aforementioned project, for the duration of our work on site. I thus confirm that I have read the principal contractor's prevention program and that I will: <ul style="list-style-type: none"> Inform my workers of the content of the principal contractor's prevention program and ensure it is followed and adhered to at all times Provide the specific prevention program for our activities under this project Inform the principal contractor of my activities and operations on site and obtain consent before starting work Follow health and safety guidelines provided by the principal contractor's site representative and attend the principal contractor's training activities and health and safety meetings as needed 	
Name of representative:	Name of company:
Description of work to be done on site:	
Approximate work timeline: Start:	End:
_____ Signature	_____ Date
PRINCIPAL CONTRACTOR I hereby agree to allow (name of external contractor) _____ to perform work for the aforementioned project and, as principal contractor, to take all necessary steps to protect the health and safety of workers on site. Should the external contractor repeatedly refuse or fail to comply with my orders, I will inform PWGSC's Departmental Representative and provide written evidence of my interactions with said contractor.	
Name of representative:	Name of principal contractor:
Signature: _____ Date: _____	
Provide a completed and signed copy to the Departmental Representative.	

Partie 1 General

1.1 PRECEDENCE

- .1 The sections of Division 01 take precedence over technical sections in the project manual's other divisions.

1.2 REFERENCES

- .1 The Contractor must meet the requirements of the most recent Environmental Impact Assessment (EIA) report (see Appendix 5) regarding the use of the Contractor's dredging and related floating equipment where applicable. Among other things, the Contractor must ensure its equipment and work methods comply with the requirements and mitigation measures set out in clause 7.1 of the report.

The Contractor must comply with laws and regulations governing environmental protection, fisheries management, and fish habitat protection.

1.3 FIRES

- .1 Fires and the burning of rubbish at the site/workplace are not permitted.

1.4 WASTE DISPOSAL

- .1 It is prohibited to discharge waste or volatile materials like mineral spirits or oil and paint thinners into waterways or storm and sanitary sewers. These materials must be disposed of pursuant to the requirements of local authorities.

1.5 POLLUTION CONTROL

- .1 Control emissions from equipment and materials as required by applicable laws and regulations.
- .2 Prevent fine and extraneous materials from contaminating air at the site and beyond.
- .3 Keep absorbents on site at all times so you can respond quickly if there is a hazardous material spill.
- .4 If there is an accidental marine spill, the Contractor must immediately report it to CCG's Environmental Response Program at 1-800-363-4735 and take all necessary steps to correct the situation and minimize its environmental impact.

The Contractor's dredge must also have a spill control kit. In the event of an oil spill, the Contractor must use the kit and comply with article 1.5.4 of this section. The kit should include at least:

- .1 One (1) salvage drum with a minimum capacity of 285 litres (75 U.S. gallons)
- .2 One hundred (100) 340-gram (12 oz CDN) absorbent pads
- .3 Fifteen (15) flotation collars (0.07 m wide X 1.2 m long)
- .4 Four (4) flotation collars (0.1 m wide X 3 m long);
- .5 Nine (9) kg of granular absorbent
- .6 One (1) drain cover
- .7 One (1) shovel
- .8 Disposal bags

.9 Sealing or patching (capping) compound

- .5 Regarding the transportation, handling, and storage of dangerous goods on vessels, the Contractor must comply with the *Canada Shipping Act* and all regulations made thereunder.

1.6 NOISE POLLUTION

- .1 Given the proximity of the channel in the Champlain region, the Contractor must limit and reduce equipment noise and disturbance as much as possible (tug movements, floating buildings that serve as employee residences, the shining of light toward the shore, generator use on the shore side of buildings, etc.).

Part 3 Products

1.7 N/A

- .1 N/A

Part 4 Execution

1.8 BIODEGRADABLE OIL

- .1 Recommend floating equipment with engines that use specially designed biodegradable oil

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

- .1 Offices

1.2 PRECEDENCE

- .1 The sections of Division 01 take precedence over technical sections in the project manual's other divisions.

1.3 OFFICES

- .1 The Contractor must give the Departmental Representative a reasonable workspace on the dredge with suitable amenities (including electricity and an Internet connection to transfer photos and MS Office documents up to 100 megabytes in size).

1.4 SANITARY FACILITIES

- .1 Provide sanitary facilities for workers and staff pursuant to relevant orders and regulations.
- .2 Post notices and take all precautions required by local health authorities. Keep premises and area clean.

Part 2 Products

2.1 N/A

- .1 N/A

Part 3 Execution

3.1 N/A

- .1 N/A

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

Section 01 11 01 – Work Description Summary

Section 01 35 43 – Environmental Procedures

1.2 MEASUREMENT FOR PAYMENT PURPOSES

- .1 Dredging at hourly unit rate (h):
 - .1 Payable dredging hours are determined based on daily reports completed and signed by both the CCG Technical Authority (who will be on board for all dredging operations) and the Contractor.
 - .2 Payable dredging hours are the actual hours spent dredging scattered shoals at each dredging site, to be specifically determined during the project. Reasonable time taken to set up the dredge on a shoal will be considered payable dredging hours.
 - .3 Work disruptions of less than thirty (30) minutes for unexpected minor repairs, up to a maximum of three (3) disruptions per 24-hour period to let dredging continue, will be considered payable dredging hours. However, the Contractor must clearly describe, explain, and justify the disruptions to the Departmental Representative.
 - .4 The relocating of a dredge from one shoal to another on the same dredging site will be considered payable dredging hours.
 - .5 Non-payable time or hours refers to time taken by the Contractor to:
 - .1 Prepare the dredge to leave a dredging site at the end of the work day
 - .2 Move the dredge between dredging sites and the place where it will be parked overnight
 - .3 Allow a commercial vessel to safely pass (though stoppages of thirty [30] minutes or less will be paid for)
 - .4 Work disruptions of more than fifteen (15) minutes for any other reason, including the slipping of spuds, are not considered payable dredging hours
- .2 Relocation at a per-kilometre (km) unit rate:
 - .1 Since dredging equipment relocations of more than 10 kilometres will be considered and paid on a per-kilometre rather than an hourly basis, about 150 kilometres should be payable. Optionally, an additional distance between 0 and 50 km may be added to the 150 km depending on the layout of the scattered shoals to be dredged.
 - .3 Depths will be adjusted to chart datum using GPS-OTF technology. The Contractor is responsible for obtaining, by its own means and at its own expense, all relevant data needed to perform the work, specifically including water level data and the horizontal and vertical positions of its dredging equipment (see Appendix 6).
 - .4 Primary mobilization and demobilization costs will be paid as follows:

- .1 When the Contractor's equipment is fully mobilized and five (5) days of dredging are completed, the Departmental Representative will pay the Contractor sixty percent (60%) of the amount submitted at specific items in the price table (main mobilization and demobilization).
- .2 Payment of the aforementioned cost may not exceed ten percent (10%) of the total contract price. The remaining portion will be included in the final payment.
- .5 Payment for the work will be issued on a monthly basis according to the amount of work done during the month as assessed by the GCC Technical Authority.
- .6 **Obstructions**
 - .1 If the Contractor is required to dredge or recover material constituting a non-natural obstruction (debris, etc.), it must remove and dispose of it as directed by the CCG Technical Authority (and in accordance with Transport Canada's Navigation Protection Program [NPP], where applicable) at an hourly rate agreed in advance by the Departmental Representative and the Contractor as set out below:
 - .1 The hourly rate subject to the specific item in the unit price table will be used to pay for the time taken to remove and dispose of obstructions.
- .7 **Unexpected dredging work**
 - .1 If the Contractor needs to conduct dredging that is not part of the work set out in these specifications, it must obtain prior written consent from the Departmental Representative. The Contractor and the Departmental Representative must agree in advance on the additional costs the Contractor may claim for such work.
- .8 All work involving the placement of dredged sediment in the disposal areas shown in the specifications will be included in the hourly unit rate and not subject to a separate payment.
- .9 All work stoppages and downtime will be the sole responsibility of the Contractor except those that may be requested by the CCG Technical Authority.

The Contractor and/or its sub-contractors are wholly liable for time lost or expenses incurred, in particular for 1) the towing of its dredging equipment, or for 2) any loss or damage from storms, fires, collisions, or other causes while travelling to or from the dredge or disposal sites or during the period the equipment is employed under this contract, or for 3) delays, damage, or accidents caused by debris of any kind or by concurrent projects conducted in the same area by either the CCG Technical Authority, other government departments, corporations, individuals, or the shipping industry.

1.3 DEFINITIONS

- .10 Partial dumping area: A small area located within a large disposal or dumping area
- .11 Debris: Pieces of wood, wire cables, scrap metal, chunks of concrete, and other waste material
- .12 Dredging: Removal of sediment (or material) from the bottom of a water body, including its transport to and disposal at designated sites. This specification only concerns dredge operations that are paid at an hourly unit rate (h) and applies to scattered shoals with small volumes.

- .13 Maintenance dredging: The dredging of non-stable material or isolated or recent obstructions in a given area (as opposed to capital dredging, which is the dredging of materials that have never been dredged or handled).
- .14 Undesirable or problematic shoal: Any mapped shoal that, in the CCG Technical Authority's view, obstructs or could obstruct the waterway or impede commercial shipping.
- .15 Mobilization and demobilization of dredging equipment: All work and activity by the Contractor, relating chiefly to dredging equipment, needed to get the equipment to the work site, keep it operating until the work is done to the CCG Technical Authority's satisfaction, and transport it safely to the next destination when the project is finished.
- .16 Grade: Horizontal plane above which all sediments must be dredged
- .17 Dredging period (and/or project period): Number of days/weeks between two scheduled dates to carry out the dredging work, determined by the GCC Technical Authority.
- .18 Estimated quantity (assessment): Number of dredging hours to be completed (see Appendix 1).
- .19 Maintained waterway sections: Represented on nautical charts by various dotted lines (often parallel) with no depths indicated between them except for depths maintained by dredging.
- .20 Class A sediments: Sediments composed of solid rock that require drilling and blasting to loosen as well as rocks or rock fragments with individual volumes of more than 4.0 m³.
Class B sediments: Relatively unstable sediments composed of loose or shale rock, silt, sand, quicksand, mud, gravel, shingle, clay, gumbo, boulders, hardpan, debris, and any other fragmented block or sediment with a volume of less than 4.0 m³.
- .21 Dredging site: Shoal area to be dredged where the distance between two consecutive shoals is ten (10) kilometres or less. An isolated shoal located more than ten (10) kilometres from any other shoal to be dredged would be considered a dredging site.
- .22 GPS-OTF technology: State-of-the-art real-time kinematic positioning technology that provides centimeter-level precision for real-time compensation of water level variations (see Appendix 6).
- .23 Company volume (V_Cie): Volume of dredged sediment assessed and reported by the Contractor during dredging operations (see article 3.1.16 of this section).
- .24 Chart Datum (CD): A reference level set by the Canadian Hydrographic Service (CHS) that is low enough that the tide level (or water level in non-tidal zones) rarely falls below it.
- .25 CCG Technical Authority: The Canadian Coast Guard (CCG) monitors and maintains waterways through the Waterways Management Program (WMP), a CCG program that serves as technical authority for this contract.
- .26 Contracting authority: The contracting authority that will manage this contract is Public Services and Procurement Canada (PSPC).
- .19 Departmental Representative: The Departmental Representative acts as technical manager. Appointed at the time the contract is awarded, the Departmental Representative is in charge of all matters concerning the work's technical aspects and is authorized to

issue notices, instructions, and amendments according to the scope of the work. The representative accepts in a timely manner on Canada's behalf any notice, order, or other communication from the Contractor regarding the work, and reviews and follows up on documents filed by the Contractor pursuant to contract requirements. However, the representative may not authorize changes to the terms of the contract.

1.3 REGULATORY REQUIREMENTS

- .1 The Contractor must respect the rights and privileges of others, obey all federal, provincial, and municipal laws, orders-in-council, regulations, and by-laws, and ensure its employees (including subcontractors) do so as well.
- .2 The Contractor must mark all floating equipment with lights pursuant to the Collision Regulations.

1.4 WORK SCHEDULE

- .1 Within two (2) weeks before the start of work each year, the Contractor must submit a detailed work schedule to the CCG Technical Authority for approval.
- .2 The work schedule must include the average daily hours the Contractor expects to complete based on the sectors and quantities described in Appendix 1. The schedule must be realistic and meet the requirements set out in the Bid and Acceptance form (BA).
- .3 The Contractor's work schedule must indicate the date the equipment is expected to arrive at the work site as well as the work start date.
- .4 To ensure work goes smoothly, any request to change the schedule must be submitted in writing to the CCG Technical Authority for approval.
- .5 Work must proceed from upstream to downstream or as directed by the GCC Technical Authority.
- .6 The Contractor must adhere to the work schedule and take immediate steps to address potential problems or delays. During the course of the project, if, among other things, the dredging equipment (or a portion thereof) is deemed inefficient or inadequate, the Departmental Representative may require the Contractor to provide other dredging equipment (or a portion thereof) that is more suitable for the task.
- .7 Work may be performed from Monday to Friday inclusively or 7 days a week, 10 to 12 hours a day or more with the CCG Technical Authority's approval. The number of daily hours may be adjusted based on weather or other conditions.

1.5 WORK LOCATIONS

- .1 The scattered shoals to be dredged are located in maintained sections of the seaway between Montreal (buoy M195) and Saint-Antoine (3 km downstream of buoy Q16) (see nautical charts 1310 to 1315 and Appendix 2).
- .2 Sectors
 - .1 Sector 1: Section of the seaway between Montreal (buoy M195) and Sorel (buoy TRACY). Nautical charts Nos. 1310 and 1311.
 - .2 Sector 2: Section of the seaway between Sorel (buoy TRACY) and Trois-Rivières (buoy C63). Nautical chart No. 1312.

Sector 3: Section of the seaway between Trois-Rivières (buoy C63) and Batiscan (buoy D56). Nautical charts Nos. 1313 and 1314

.3 Sector 4: Section of the seaway between Batiscan (buoy D56) and Deschaillons (buoy D18). Nautical Charts Nos. 1313 and 1314.

.4 Sector 5: Section of the seaway between Deschaillons (buoy D18) and Saint-Antoine (3 km downstream of buoy Q16). Nautical charts Nos. 1314 and 1315.

.3 Disposal/dumping areas M-02, M-27, S-17, T-02, T-06, T-11, T-16 and X-04 are identified and described in Appendix 3.

1.6 INTERFERENCE WITH NAVIGATION

.1 The Contractor must obtain all necessary information on vessel movements and seasonal activities in areas affected by the dredging work, and must plan and execute the work in a way that will not interfere with seaway users.

.2 The Contractor is solely responsible for any loss of time due to river navigation for any reason. It is also responsible for any loss of material or equipment or any expense incurred during or as a result of work that the Contractor performs itself or has performed by another party.

.3 The Contractor must notify the CCG Technical Authority as soon as possible of any special relocation of dredging equipment (for refuelling, repair, etc.) that could affect the approved schedule.

.4 On an ongoing basis, the Contractor must accurately report all dredging equipment relocations to the Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS).

.5 If the Contractor's equipment interferes with navigation, the Contractor must:

.1 Immediately notify the CCG Marine Communications and Traffic Services (MCTS) and the CCG Technical Authority.

.2 Comply pursuant to articles 3.1.11 and 3.1.12 of this section.

.3 Immediately remove the equipment at the Contractor's own expense.

If the Contractor fails to do so, the CCG Technical Authority will remove the obstacle and all costs incurred will be borne by the Contractor.

1.7 DEPTHS AND GRADES

.1 The dredging depths and grades used in these specifications and the contract drawings are expressed in the SI metric system relative to chart datum (CD).

1.8 FLOATING EQUIPMENT

.1 The Contractor must supply all dredging equipment and maintain it at sufficient capacity (see article 2.1.1 of this section) to dredge, load, transport, and dispose of the entire sediment volume.

.2 Dredging equipment for the contract must be kept in good working order and used in keeping with the requirements of the latest workplace Environmental Impact Assessment (EIA) report (see Appendix 5), to the CCG Technical Authority's satisfaction.

1.9 WORK SITE INSPECTION

- .1 Before submitting its bid, the Contractor must obtain all required information on the nature and scope of the work and all conditions that may affect the performance of said work, including knowledge of the St. Lawrence Seaway and its unique characteristics.
- .2 In submitting its project bid, the Contractor agrees that it has assessed and is aware of all related impacts (nature of the project, site's geographic location, weather or climate conditions, agitation of the water body, water levels, the site's physical conditions, the river bed, and the nature of material to be dredged).

1.10 WORK SITE INFORMATION

- .1 The Contractor must have a clear understanding of the constraints that weather and marine conditions can produce in the area.
- .2 For information only, and based on similar past work, the material to be dredged should consist mainly of coarse sand. Small quantities of gravel, hard and soft clay, and rocks (Class B sediments) may also be found.
- .3 There is no tide between Montreal and Lac Saint-Pierre, and the water level, which varies gradually with high water stages, can range between -0.5m and +2.5m relative to chart datum. Between Trois-Rivières and Cap-Santé, the tide range for semi-diurnal tides can reach 5.4 m and water levels can vary between -0.6m and 5.4 m (CD). In the Cap-Santé Traverse, the tide range can reach 4.9 m and water levels can vary between 0.6 and 5.4 m. In the Saint-Antoine region, the tide range can reach 4.6m and water levels can vary between -0.6m and 5.4 m.
- .4 Current speeds can reach about four knots in the Montreal area, three knots at Trois-Rivières, four knots from Deschaillons to Portneuf, three knots in the Cap-Santé Traverse, and four knots in the Saint-Antoine area.

1.11 BATHYMETRIC SURVEYS AND ACCEPTANCE OF WORK

- .1 In this project, the Canadian Hydrographic Service will conduct bathymetric surveys with multi-beam technology on behalf of the CCG Technical Authority.
- .2 These surveys will be carried out based on weather conditions and the availability of Canadian Coast Guard (Fisheries and Oceans Canada [DFO]) survey units.
- .3 Dredging locations will be determined based on these bathymetric surveys, which will be conducted a few days before dredging starts. The CCG Technical Authority reserves the right at any time to modify the dredging limits and grades set out in these specifications.
- .4 The CCG Technical Authority will give the Contractor key data for the project in ASCII digital format (see Appendix 4). The Contractor can access these digital files from Fisheries and Oceans Canada's FTP site. The Contractor will be given the FTP address and password at the start of the project and must have suitable communication tools to log on the FTP site and obtain the required files. The Contractor will obtain the data by its own means and at its own expense during the business hours (8 a.m. to 4 p.m.) of CCG's Waterways Management (WM) division.
- .5 The GCC Technical Authority will accept work on site whenever the dredging of one or more scattered shoals is completed.

1.12 SYSTEM OF UNITS

- .1 Values for bathymetric surveys, water levels, distances, areas and volumes, which are set out in these specifications and will be noted in the course of the work, are in the International System of Units (SI).

1.13 PERSONNEL

- .1 See the requirements set out in the tender documents.

Part 2 Equipment

1.14 DREDGING AND POSITIONING EQUIPMENT

- .1 Work must be done with a clamshell dredge. All dredging of scattered shoals in sectors 4 and 5 must be done with a clamshell dredge held in place by spuds rather than cables or anchors.
- .2 All equipment used to dispose of dredged sediment must have a bottom dump or a split hull to discharge the material.
- .3 All dredging equipment must be suitable for the work in terms of its size, characteristics, and draught.
- .4 The GCC Technical Authority will have an updated list of spatial positioning equipment that the Contractor will use to position its dredge (see tender documents).

Part 3 Execution

1.15 GENERAL

- .1 Before starting work, the Contractor must obtain the CCG Technical Authority's written approval for the work schedule.
- .2 Work must be proceed from upstream to downstream or as directed by the GCC Technical Authority.
- .3 The Contractor must dredge scattered shoals in the sectors described herein to a grade of 8.1 m to 11.6 m.
- .4 The Contractor must dredge with the aid of an on-board Geographic Information System (GIS) that provides accurate real-time data on the dredge's position and bathymetric data relevant to the work (location and depth of shoals to be dredged, etc.).
- .5 The Contractor must determine its dredging equipment's horizontal and vertical position, by its own means and at its own expense.
- .6 At its discretion, the CCG Technical Authority may test the accuracy of any positioning system used by the Contractor.
- .7 Dredging equipment must have an automatic identification system (AIS).
- .8 The Contractor is solely responsible for all primary, intermediate, or secondary points ([X, Y], [X, Y, Y, Z], and [Lat, Long.]) used or determined by it or provided to it by the CCG Technical Authority or another party.

- .9 The dredger and support equipment must be kept in good condition and working order throughout the contract period.
- .10 Annual demobilization: The CCG Technical Authority will authorize the Contractor to demobilize its dredge equipment after final acceptance of all the work.
- .11 Required buoys: At its own expense, the Contractor must supply, lay, and maintain all buoys and markers needed to properly and safely conduct the work. If by chance or by accident one or more buoys or markers sink or go adrift, they must be re-floated and/or recovered at the Contractor's expense, to the CCG Technical Authority's satisfaction. The Contractor is liable for buoy or marker accidents of any kind resulting from poor placement or visibility in the day, poor lighting at night, or any other cause.
- .12 Navigation buoys: The Contractor must at no time remove or relocate main navigation buoys. Where warranted, the relocation of one or more buoys must be done by the CCG. Requests for this service must be made to the CCG Technical Authority at least ten (10) working days in advance. The CCG Technical Authority reserves the right to determine if such requests by the Contractor are warranted.
- .13 Under the Collision Regulations, the Contractor must keep in good working order all lights and signals that need to be installed on project equipment. All equipment required for the work must be properly identified and/or visible at all times.
- .14 The Contractor must mark floating equipment with lights in keeping with the international Rules of the Road and maintain radio watch on board.
- .15 Side-casting is permitted only in designated disposal areas.
- .16 The Contractor must perform the hours of dredging based on the rough breakdown in Appendix 1.
- .17 The Contractor must report to the CCG Technical Authority, using an electronic form provided for that purpose: 1) start and end times for all dredging periods; 2) start and end times for all periods when sediment is transported to disposal sites; 3) volumes (V_Cie) of sediment transported and disposed of; 4) number of hours spent disposing of sediment; 5) reasons and number of hours for all dredge equipment shutdowns; and 6) number of hours for any other event or occurrence. Each day must be seen to start at 12 a.m. and end at 11:59 p.m.
- .18 Work must be performed with just one dredger in operation.
- .19 The CCG Technical Authority will gradually identify scattered shoals to be dredged based on the progress of the Contractor's work.

1.16 CLASS A SEDIMENTS

- .1 No Class A sediments are expected to be found in the sectors to be dredged. Should any be encountered, the Contractor must remove the overlying material (Class B sediments).
- .2 Class A sediments
 - .1 Except for rocks or rock fragments (>4.0 m³)
 - .1 When Class A sediments (except rocks or rock fragments [$>4.0 \text{ m}^3$]) are to be dredged, the CCG Technical Authority will assess the additional work. Where applicable, and at the CCG Technical Authority's request, the Contractor may have to supply the proper and necessary equipment

to dredge, load, transport, and dispose of the Class A sediments to the CCG Technical Authority's satisfaction. The Contractor and the Departmental Representative must determine the cost of this additional work (dredging of Class A sediments) in advance and, if necessary, amend the contract accordingly.

Rocks or rock fragments (>4.0 m³)

- .2 If a rock or rock fragment (>4.0 m³) is encountered, the Contractor must make every effort to handle and dispose of it as directed by the CCG Technical Authority
- .3 In addition to payable dredging hours for the work (see article 1.2.1 of this section), the Contractor will receive a lump sum payment for each rock.
- .4 The purpose of this lump-sum payment is to compensate the Contractor for breakage, wear and tear, or loss and damage it may incur during handling and disposal.
- .5 This lump sum is determined by averaging all hourly unit rates for the current year subject to the unit price table, multiplied by 50%. The amount will be included in the last annual payment.

1.17 DISPOSAL OF DREDGED MATERIAL

- .1 All dredged sediment and material (except some types of debris, where applicable) must be precisely and evenly deposited in the disposal sites indicated in Appendix 3 in accordance with the CCG Technical Authority's instructions.
- .2 If sediments are deposited outside of authorized disposal areas, the Contractor and/or its subcontractors must re-dredge them at their own expense and dispose of them at the proper sites. If pre- and post-dredging surveys are required because of a non-compliant disposal, the Contractor must pay a portion of the survey costs at a nominal rate of \$1,300/hour. The Contractor will be charged a minimum of \$1,300 for each intervention. These costs will be deducted from the last monthly payment for the current year.
- .3 The minimum water depths (chart datum) to be maintained at some partial dumping areas are as follows:

<u>Site</u>	<u>CD</u>
Yamachiche Nord (S-17)	2.4 m
St-Pierre-les-Becquets (T-11)	3.5 m
Donnacona (X-04)	7.5 m
- .4 The CCG Technical Authority will inform the Contractor of the location of partial disposal/dumping areas to be used before the work starts.

1.18 COOPERATION AND ASSISTANCE

- .1 When work is inspected, the Contractor must cooperate with the CCG Technical Authority and offer all reasonable assistance.
- .2 The Contractor must provide the CCG Technical Authority with required and satisfactory marine transport from a local wharf to the dredge, whether for site inspections or for any other reason the CCG Technical Authority deems appropriate.

- .3 The Contractor must also provide wharf facilities and obtain, at its own expense, the required safe spaces (on land or water, as applicable) for its equipment throughout the contract period.

END OF SECTION

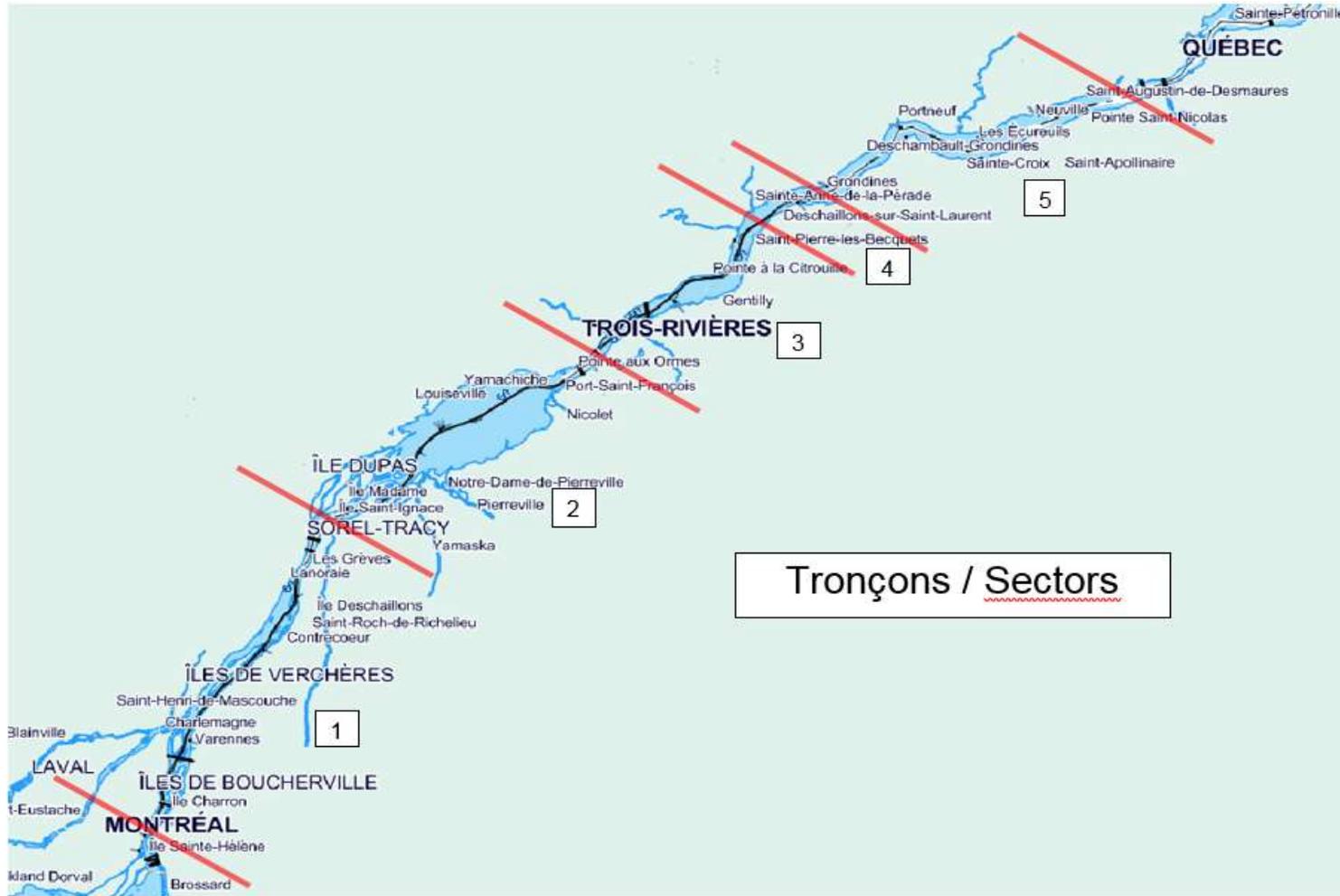
Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program

Années / Years 2020-21-22		Montréal à/to St-Antoine		
Quantités estimatives et répartition approximative des heures de dragage à réaliser / Estimated quantities and approximate distribution of dredging hours to be done				
Tronçons / Sectors	Hauts-fonds épars / Scattered Shoals (quantité approximative / approximate amount)	Niveaux de dragage / Dredging (m)	# Poste / Item	
1-Montréal (bouée / buoy M195) à/to Sorel (bouée / buoy TRACY)	80 h (55)	Entre / Between 8,10m et / and 11,60 (Zéro des cartes / Chart Datum)	1	De Base / Basic
2-Sorel (bouée / buoy TRACY) à/to Trois- Rivières (bouée / buoy C63)				
3-Trois-Rivières (bouée / buoy C63) à/to Batiscan (bouée / buoy D56)				
1, 2, 3-Montréal (bouée / buoy M195) à/to Batiscan (bouée / buoy D56)	30 h (20)		4	<i>Sur option / Optionally</i>
4-Batiscan (bouée / buoy D56) à/to Deschailons (bouée / buoy D18)	10 h (15) note 1		2	De Base / Basic
5-Deschailons (bouée / buoy D18) à/to St- Antoine (Q16+3km aval/downstream)	20 h (15) note 1		5	<i>Sur option / Optionally</i>
Total	90 h (70) 50 h <i>(35) sur option</i>			

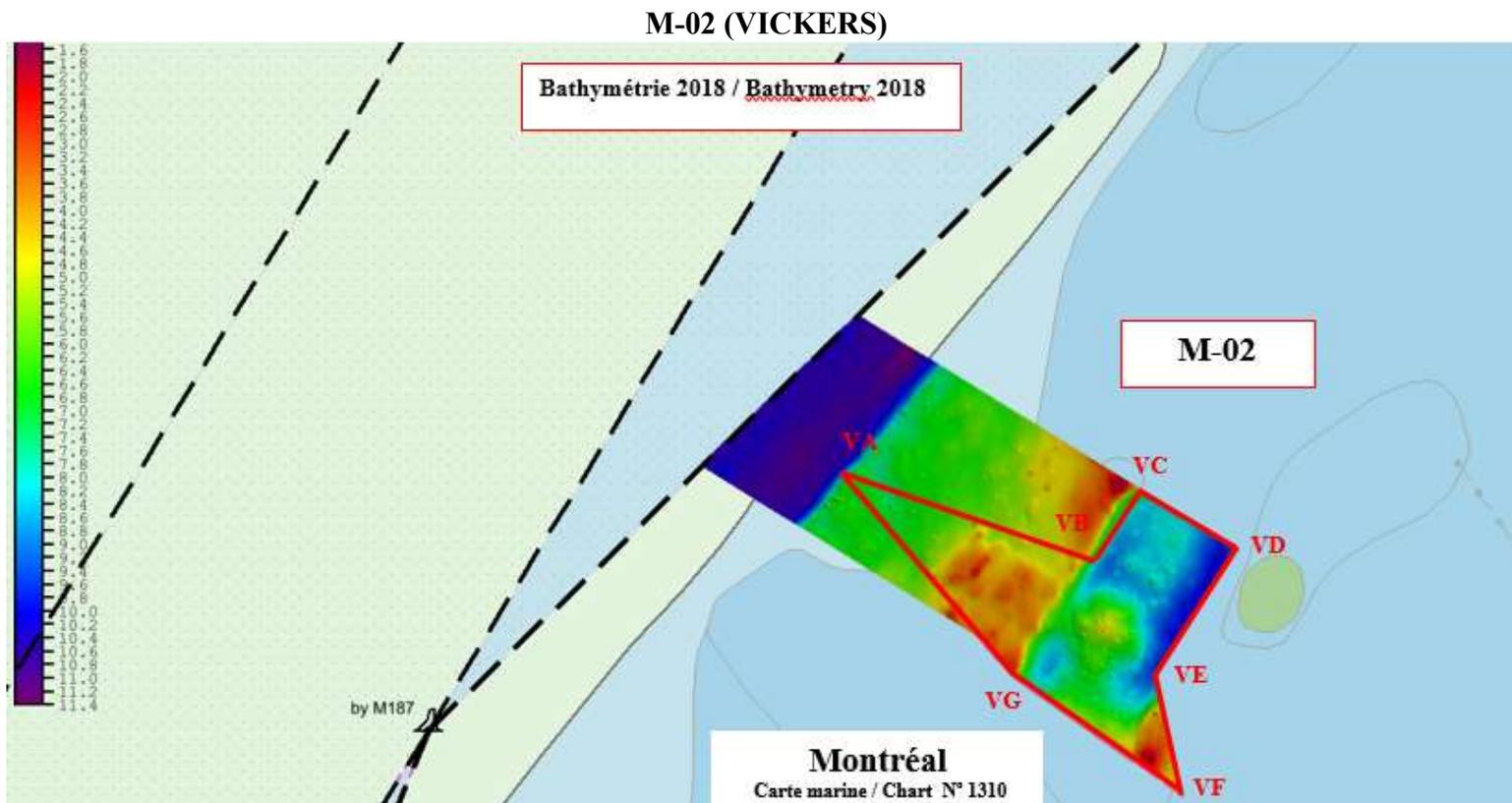
note 1: Les heures de dragage devront obligatoirement être réalisées à l'endroit indiqué avec une drague à benne preneuse qui est retenue en place avec des poteaux / The hours of dredging must necessarily be made where indicated with a clamshell dredge, which is held in place with poles;

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program

Montréal à/to St-Antoine



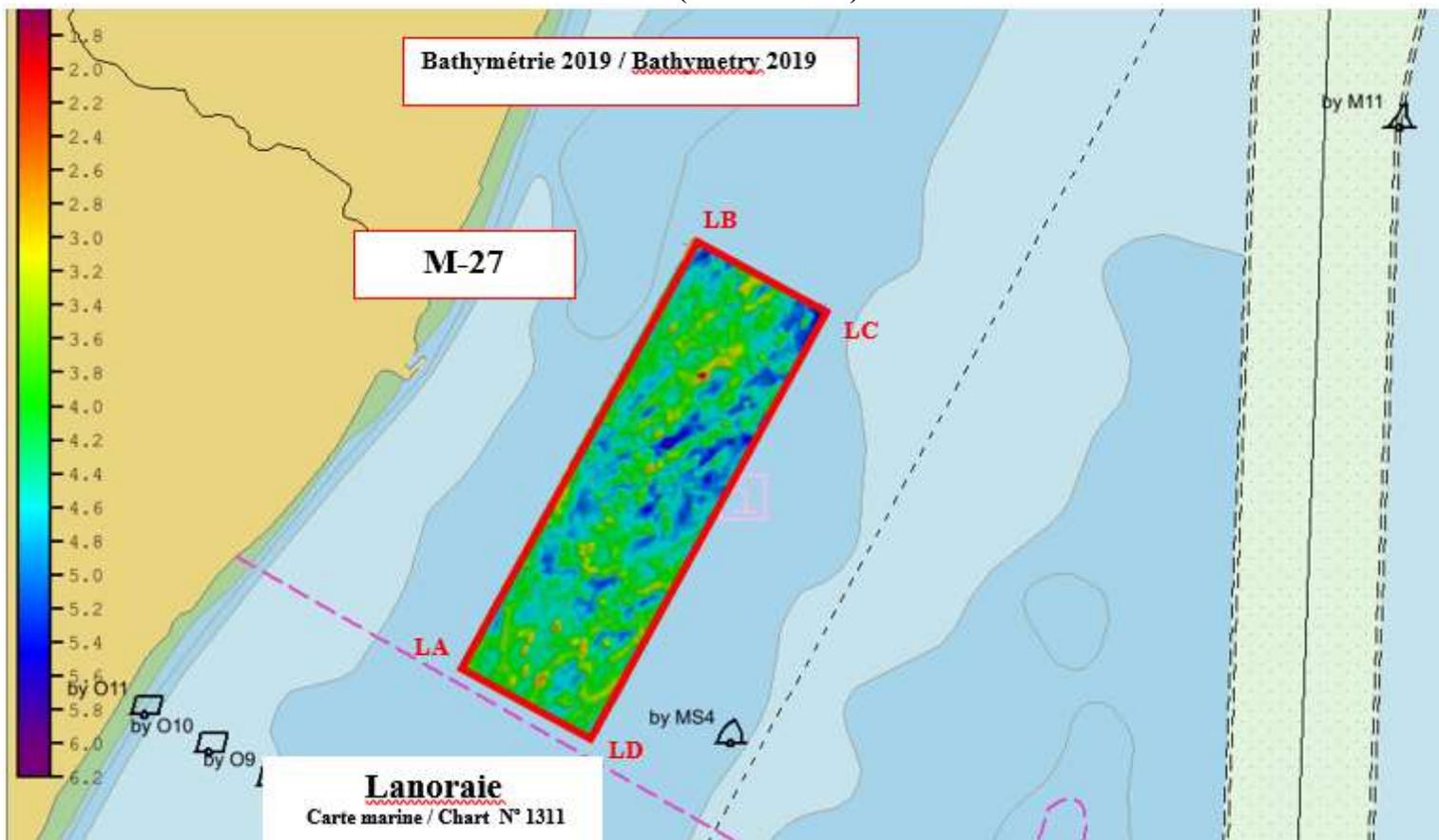
Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS	
	N°	X		Y
	VA	303 423	5 045 482	70m x 135m Dimension approximative Approximate overall dimension
	VB	303 587	5 045 425	
	VC	303 618	5 045 474	
	VD	303 677	5 045 438	
	VE	303 626	5 045 354	
	VF	303 645	5 045 280	
	VG	303 537	5 045 355	

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

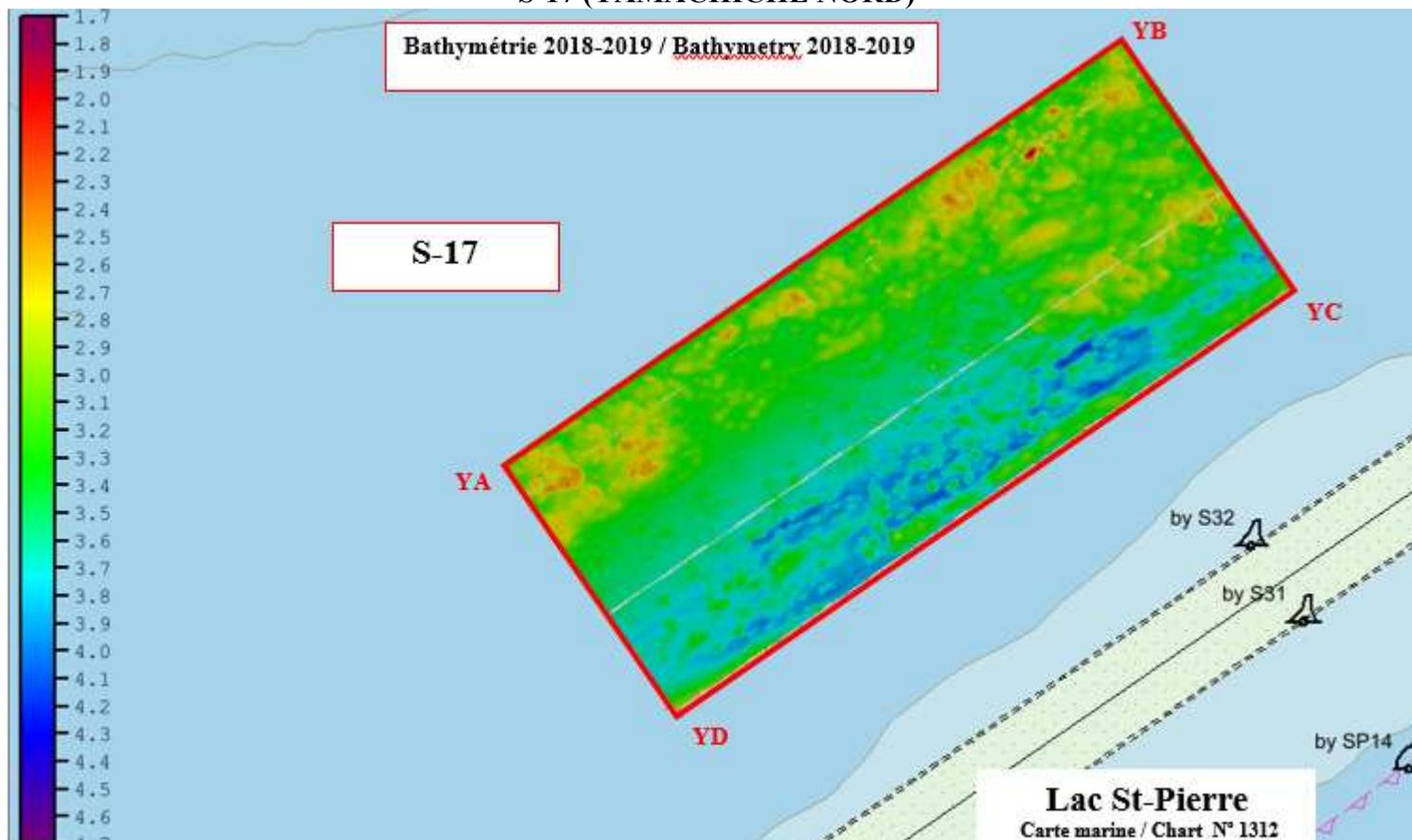
M-27 (LANORAIE)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS
	N°	X	
LA	325 659	5 088 335	250m x 800m
LB	326 040	5 089 039	Dimension globale
LC	326 260	5 088 920	Overall dimension
LD	325 879	5 088 216	

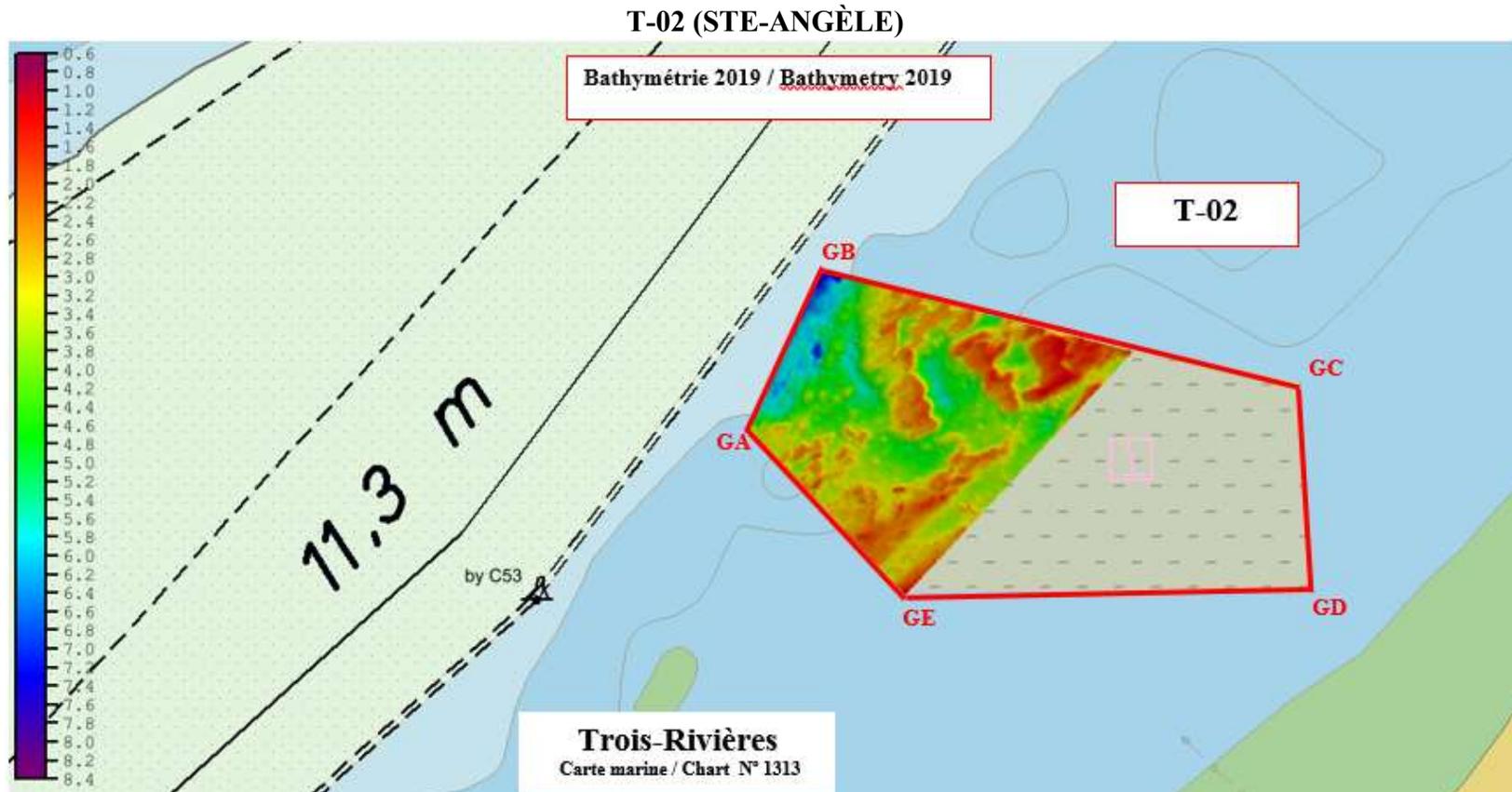
Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

S-17 (YAMACHICHE NORD)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS
	N°	X	
YA	360 867	5 123 336	800m x 2000m Dimension globale Overall dimension
YB	362 516	5 124 467	
YC	362 968	5 123 808	
YD	361 319	5 122 676	

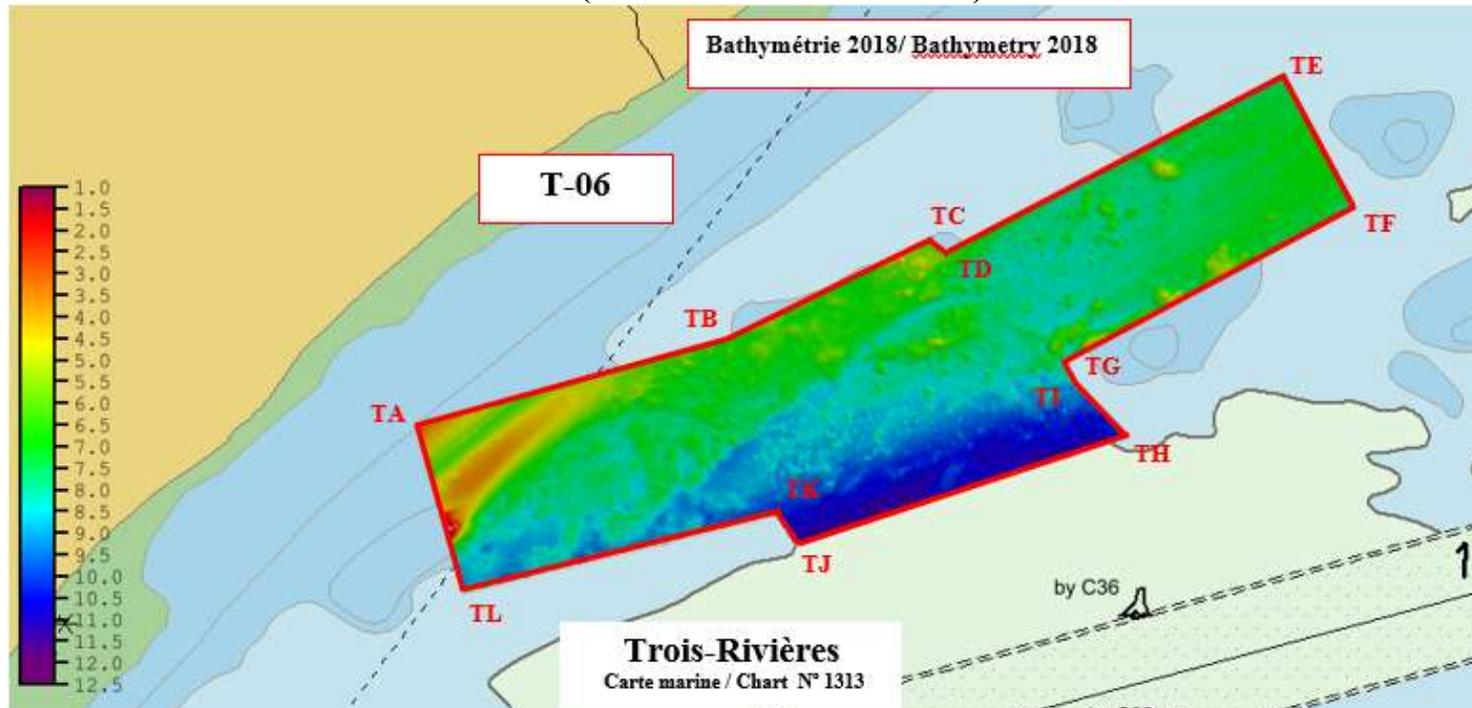
Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS
N°	X	Y	
GA	380 661	5 134 210	250m x 600m Dimension globale Overall dimension
GB	380 746	5 134 394	
GC	381 332	5 134 265	
GD	381 348	5 134 010	
GE	380 847	5 134 012	

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

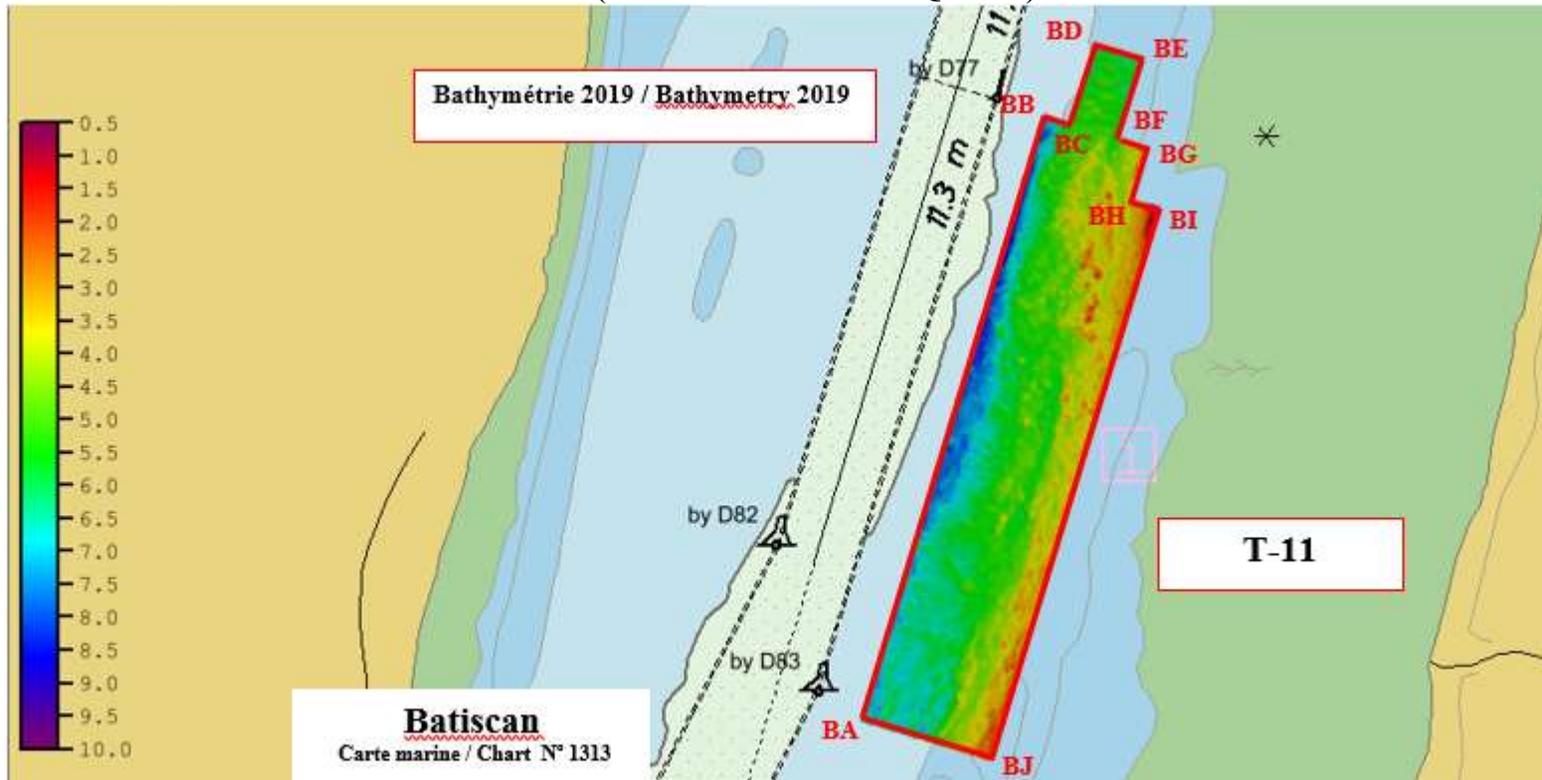
T-06 (CAP-DE-LA-MADELEINE)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS
N°	X	Y	
TA	383 376	5 138 528	350m x 1750m Dimension globale approximative Approximative overall dimension <u>NOTE</u> : Site utilisé pour dépôt de roches de plus de 30 cm de diamètre / Site used to deposit rocks of more than 30 cm diameter
TB	383 958	5 138 696	
TC	384 315	5 138 873	
TD	384 354	5 138 850	
TE	384 982	5 139 182	
TF	385 112	5 138 935	
TG	384 577	5 138 654	
TH	384 587	5 138 614	
TI	384 692	5 138 513	
TJ	384 077	5 138 314	
TK	384 041	5 138 369	
TL	383 460	5 138 223	

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

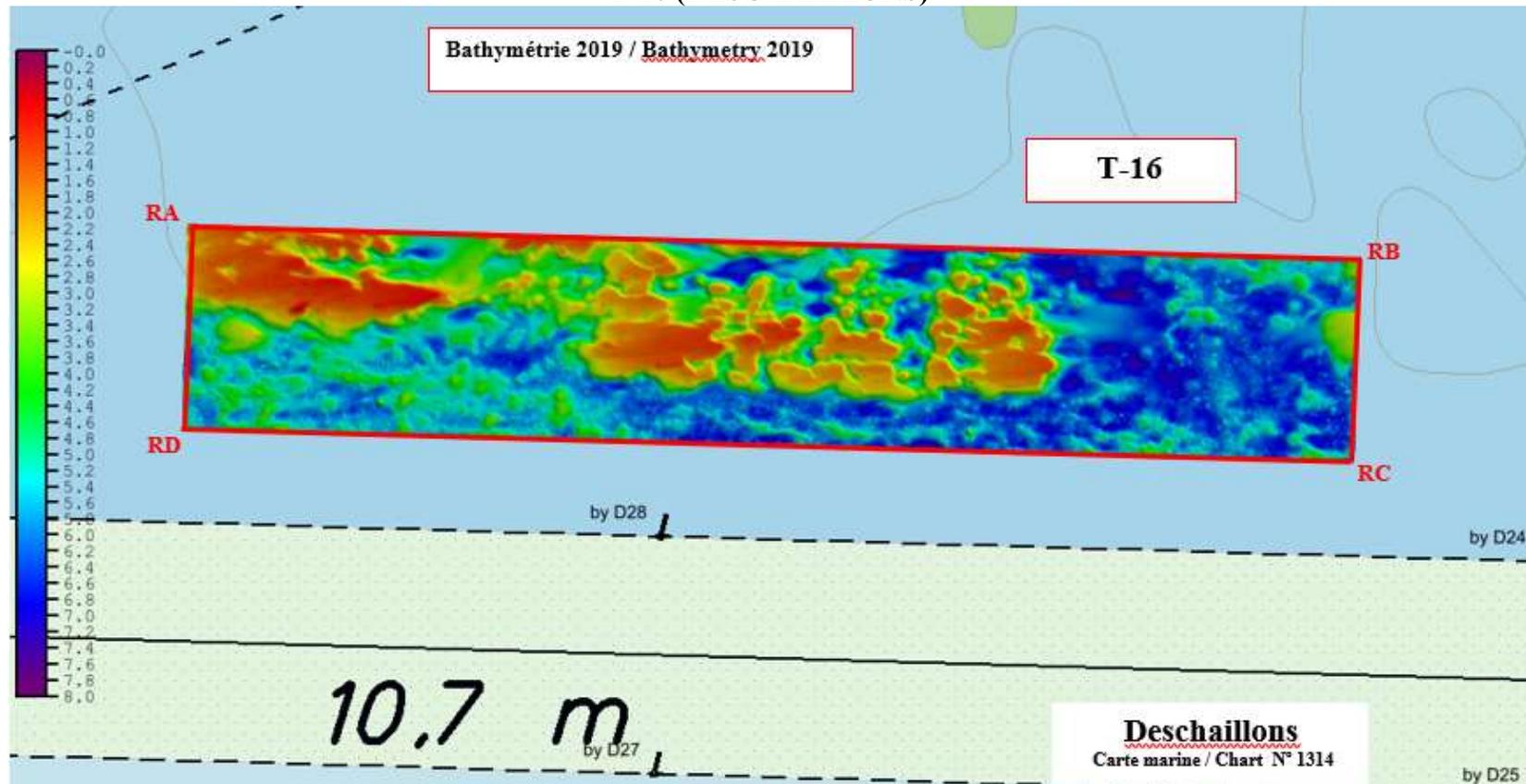
T-11 (ST-PIERRE LES BECQUETS)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS	
	N°	X		Y
BA	401 431		5 148 345	400m x 1860m Dimension globale approximative Approximative overall dimension
BB	401 970		5 150 125	
BC	402 054		5 150 101	
BD	402 124		5 150 335	
BE	402 250		5 150 299	
BF	402 182		5 150 061	
BG	402 257		5 150 038	
BH	402 211		5 149 885	
BI	402 306		5 149 856	
BJ	401 814		5 148 229	

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

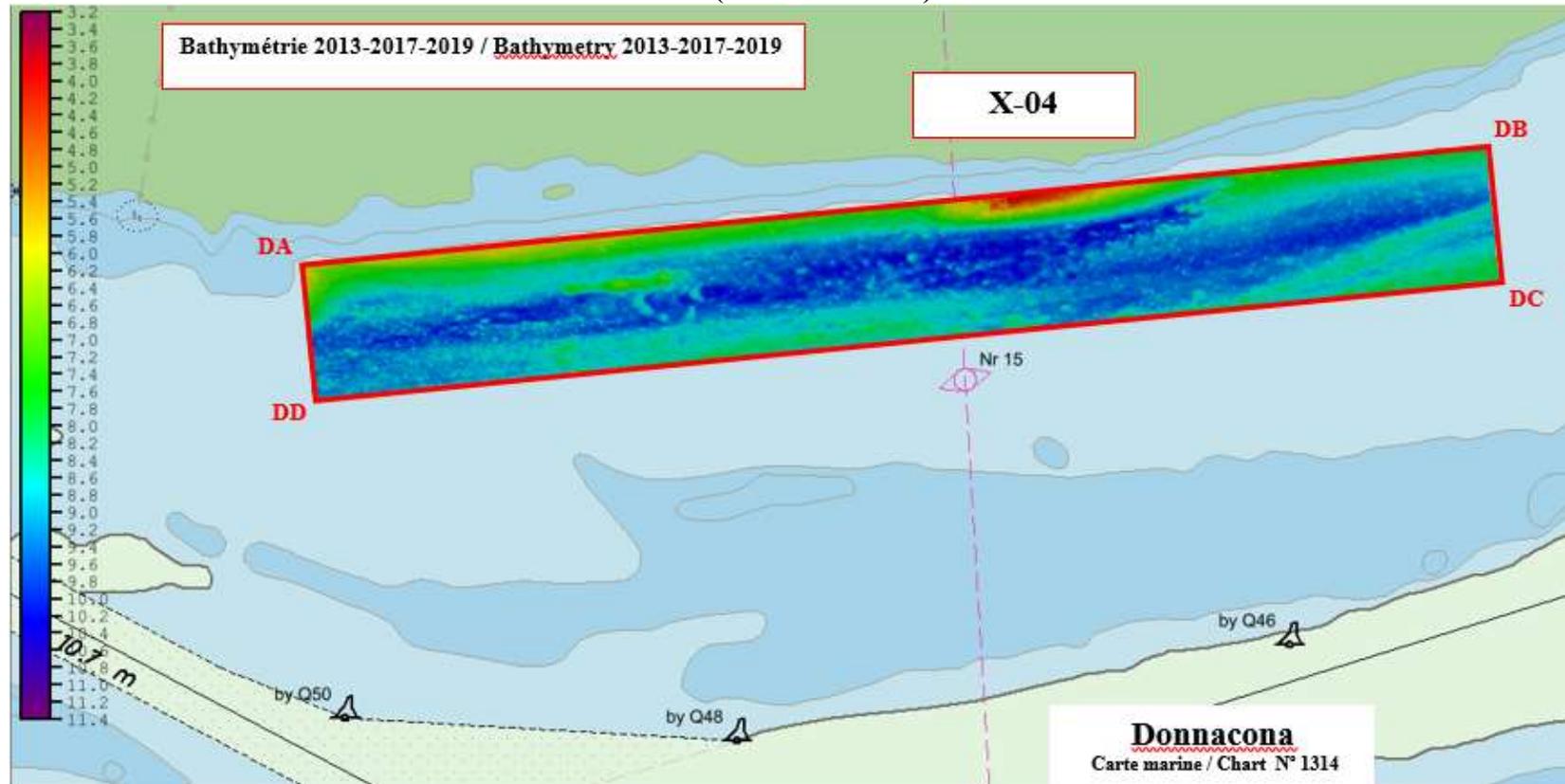
T-16 (DESCHAILLONS)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 8)		REMARQUES / REMARKS
	N°	X	
RA	412 321	5 159 760	200m x 1200m
RB	413 521	5 159 726	Dimension globale
RC	413 515	5 159 526	Overall dimension
RD	412 316	5 159 560	

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Aires de mise en dépôt / Dumping sites

X-04 (DONNACONA)



POINTS	COORDONNÉES / COORDINATES (NAD 83 ; MTM ; ZONE 7)		REMARQUES / REMARKS
	N°	X	
DA	210 286	5 169 242	450m x 4400m
DB	214 665	5 169 676	Dimension globale
DC	214 709	5 169 228	Overall dimension
DD	210 330	5 168 794	

**Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program**

Montréal à/to St-Antoine

Shéma des données numériques / Digital data schema

Format ASCII / ASCII Format

301658.00,5043136.25,11.52
301659.07,5043243.25,11.55
301664.56,5043245.27,11.56

Profondeurs (m) / Depths (m)

Coordonnées (m) / Coordinates (m)
(NAD 83 SCRS V2; MTM; zone 7
ou/or zone 8)

Voie navigable du St-Laurent / St-Laurent Waterway Programme d'entretien annuel / Annual Maintenance Program

Montréal à/to St-Antoine

Reference : Chapter 7 Mitigation measures; Article 7.1 Preventive Actions Environmental impact assessment (EIA) (2019-2023)

Note: This article 7.1 part below does not exempt the Contractor, before bidding, to read and understand all report Environmental impact assessment (2019-2023), see attachment.

7.1 PREVENTIVES ACTIONS

However, the following preventive action nevertheless be taken to avoid any potential risk.

- The work will be executed outside periods deemed sensitive for wildlife.
- The Contractor will be required to use a specific positioning system (DGPS-OTF type) to ensure that dredged areas are limited to those set out in the specifications and that dredged sediment are discharged at the location indicated in the specifications.
- Notices to shipping will be issued to inform navigators of the presence of the dredger in the seaway.
- The CCG Marine Communications and Traffic Services will coordinate and manage marine traffic throughout the period of the work.
- Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
- Toxic substances will be handled with care, carefully stored and disposed of appropriately to prevent spills in water.
- The contractor will identify all risks of spills of toxic substances that are used or stored for the duration of the work. It will provide preventive and safety measures to be taken, as well as the emergency plan to be adopted in case of spill. An emergency kit must be present on board throughout the work.
- Regarding the concerns of some owners of Champlain residents about the inconvenience associated with temporary anchorage near the shore or equipment used for housing staff (this problem only applies when the work is done with a dredge Type "clamshell"), the GCC will continue its efforts to sensitize Contractors to this issue at a meeting preceding the start of work. These will limit and reduce the possible noise and disturbance caused by the related equipment (tugs displacement, presence of floating vessel used to stay employed, light emissions toward shore, using generators on resident shore side) as recommended in the study commissioned by the GCC, whose final report was filed by the firm CJB Environnement Inc. in January 2007. In addition, upon request, the GCC will inform citizens of the evolution of work and means that have been established to improve conditions.
- Considering the commencement of commercial sturgeon fishing in Saint-Pierre-les-Becquets, about June 14 of each year, the portion of the work in the area between Bécancour and Batiscan should ideally be completed before that date or be interrupted for the first days of fishing. At the Lake St. Pierre, dredging should not interfere with the fall fishing for sturgeon, which begins about September 14 because dredging is normally after this period.

**Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program**

Montréal à/to St-Antoine

- St-Lawrence Dredging Activities Planning Registry (http://planstlaurent.qc.ca/en/uses/dredging_activities.html) will be updated regularly in order to allow the public to advance knowledge of upcoming projects and to express concerns directly to developers and regulatory agencies early in the planning process. This register is leading source information to interest groups and general public.

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine

Information relative to the different horizontal or vertical spatial reference systems that will allow the contractor to get access, at his own expense and risk, to a geospatial positioning and water levels for dredging operations

Objectives

Teach on the available tools to determine the vertical positioning with regard to chart datum (ZC) used for bathymetric surveys or dredging activities in the St. Lawrence Waterway, between Bécancour and l'Isle-aux-Coudres. Other information is also available to specify geospatial data format.

Note

In Canada, the level of reference to which the charted depths are reduced, normally known as the chart datum, usually matches the Lower Low Water, Large Tide (LLWLT).

1 To get access to the water level data from GPS

1.1 Canadian Coast Guard (CCG) GPS-OTF Network

In the St. Lawrence waterway, a OTF positioning system was set up to obtain precisely water level interpolated to ship position from GPS observations combined with other data relative to the movement of the ship and to undulation established table (supplied by CHS), to give a real depth.

The CCG GPS-OTF network consists of nine (9) fixed GPS reference stations, distributed as shown in the figure just below.

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine



In the Traverse du Nord area, the GPS reference station is the one located at:

Saint-François de l'Île-d'Orléans  (46°59'47.5847"N 70°48'29.4584"W).

Between Bécancour and Cap-Santé, reference stations are listed below:

Neuville  (46°41'47.4178"N 71°34'22.4802"W),
Grondines  (46°35'14.8737"N 72°02'26.5508"W) et
Ste-Marthe  (46°23'49.41037"N 72°27'11.51788"W).

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine

1.2 GPS-OTF receivers

The official OTF positioning system adopted by the Canadian Coast Guard – Quebec Region is the Long Range Kinematic (LRK) approach (<http://en.wikipedia.org/wiki/LRK>) today integrated into algorithms RTK. This approach allows to obtain very precise fixed solutions on vectors of more than 40 kilometers.

Rough data is transmitted through a UHF link, in a proprietary format called *ATOM*.

In order to use the CCG LRK network, the required GPS receiver is an Ashtech GPS Proflex receiver (PF500, PF800, etc.), equipped with the LRK option and a UHF receiver, and U-Link model (transparent mode) or ADL (U-Link mode).

The Ashtech GPS receiver actually used by our surveying vessels is ProFlex 800.

1.3 Table of geoid heights from CHS

Heights obtained from a GPS receiver are in fact geodetic heights or *Ellipsoidal Height*, which means that the GPS receiver measure is relative to the reference ellipsoid. To reduce these ellipsoidal heights to the chart datum, a table of geoid heights is required. For your information, this table is maintained and distributed by the Canadian Hydrographic Service (CHS) — Quebec Region (see coordinates at the end of this document).

2 Other ways to get access to the water level data

2.1 CHS SINECO tidal gauges network

The SINECO network is an observation and forecast operating system of water levels covering the whole St. Lawrence Waterway from Montreal. The network is operated and maintained by CHS — Quebec Region. It consists of approximately twenty measurement systems (tidal gauges) distributed at strategic locations along the St. Lawrence River where water levels are measured. All stations are also equipped with sensors for measuring water depth, atmospheric pressure, water temperature, and - only downstream of l'île d'Orléans - water salinity. Notice that the latter two are used in order to validate the water level.

For a reduction in Datum GNSS positioning (Global Navigation Satellite System), a partition table NAD83CSRS (version 2-Zéro) - Datum is available under license, by an email request to SINECO.XLAU@dfo-mpo.gc.ca. Allow several weeks of delay. Advocate this method because it is the one used by CHS to the survey of the channel.

SINECO network of water level observations are available for the last 24 hours on the website <http://marees.gc.ca/fra/trouver/region/4>

**Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine**

Station name	Station No	Latitude	Longitude
Saint-Joseph-de-la-Rive	3057	47° 26' 55.6"	70° 21' 56.0"
Cap du Banc Brûlé	3075	47° 05' 22.4"	70° 42' 39.0"
Saint-François I.O.	3100	46° 59' 47.5"	70° 48' 29.3"
Saint-Laurent I.O.	3110	46° 51' 29"	71° 00' 61"
Vieux-Québec	3248	46° 48' 40.2"	71° 12' 06.7"
Neuville	3280	46° 41' 47.4"	71° 34' 22.3"
Portneuf	3300	46° 40' 52.2"	71° 52' 37.9"
Deschaillons	3335	46° 33' 39.4"	72° 06' 21.0"
Batiscan	3345	46° 30' 01.3"	72° 14' 45.1"
Bécancour	3353	46° 24' 00.9"	72° 22' 46.2"
Trois-Rivières	3360	46° 20' 25.7"	72° 32' 21.2"
Port-St-François	3365	46° 16' 21.2"	72° 37' 09.5"
Lac Saint-Pierre	15975	46° 11' 41.5"	72° 53' 43.9"
Sorel	15930	46° 02' 49.7"	73° 06' 56.5"
Contrecoeur IOC	15780	45° 49' 57.7"	73° 16' 59.5"
Varenes	15660	45° 41' 03.6"	73° 26' 37.3"
Montréal, rue Frontenac	15540	45° 31' 43.2"	73° 32' 32.8"
Montréal, Jetée no 1	15520	45° 30' 12.6"	73° 33' 09.0"

2.2 Web Data Service (WDS)

This web service provides access to observations of water levels from tidal stations from the Internet on the ship. For WDS, the specifications are at <http://marees.gc.ca/fra/info/Terms#s3>. Contrary to what is written on the website, you don't need to get a user or account password to access the data.

Notice that this same data is freely available throughout the Automatic Identification System (AIS) network developed and maintained by the Canadian Coast Guard – Quebec Region. However, once again, the development of an application capable of parsing AIS messages specific to water levels is also required.

Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine

3 – Planimetric coordinate system for numeric data transfers

3.1 S.Co.P.Q. NAD83 (CSRS) MTM Zones 7 and 8 Coordinate Systems

All bathymetric surveys are processed and delivered planimetrically in the “Système de coordonnées planes du Québec” (S.Co.P.Q.) NAD83 (CSRS V2). The system zone (MTM 7 or 8) is determined depending on the 72°W meridian. Therefore, the zone 8 corresponds to the downstream part of Grondines, while the zone 7 corresponds to the upstream part of Grondines, including the Traverse du Nord and l'Isle-aux-Coudres.

However, all numeric vector data (surfaces to be dredged, dredging templates, etc.) are produced, either in XYZ or DXF format, in geographic coordinates (NAD83 CSRS V2).

All parameters relative to the S.Co.P.Q. coordinate system, based on the Modified Transverse (M.T.M.) projection, including those relative to its corresponding datum (NAD83 (CSRS V2)), are listed in the following tables :

NAD83 (CSRS) / MTM Zone 7	
Parameter	Value
Spatial Coverage	Canada - Québec - 72°W à 69°W
Datum	NAD83 (CSRS)
Reference ellipsoid	GRS80
Projection	Transverse Mercator
False Northing	0 m
False Easting	304800 m
Scale factor	0.9999
Latitude of origine	0°
Central meridian	70.5°W
Source	http://spatialreference.org/ref/epsg/2949/

NAD83 (CSRS) / MTM Zone 8	
Parameter	Value
Spatial Coverage	Canada - Québec - 75°W à 72°W
Datum	NAD83 (CSRS)
Reference ellipsoid	GRS80
Projection	Transverse Mercator
False Northing	0 m
False Easting	304800 m
Scale factor	0.9999
Latitude of origine	0°
Central meridian	73.5°W
Source	http://spatialreference.org/ref/epsg/2950/

3.2 NAD83 (CSRS) Reference System

The North American Datum of 1983 (NAD83), version CSRS (Canadian Spatial Reference System), is the adopted reference coordinate system in Canada (<http://www.geod.nrcan.gc.ca/>). It is a 3-dimensional representation of the NAD83 horizontal datum adopted in 1986. The NAD83 (CSRS) version do not stand as a brand new geodetic reference system, but more as an update of the coordinates for all geodetic points that the official NAD83 reference system, adopted in 1990, is based on. That said, this new version does not affect the cartographic grid, since the NAD83 reference ellipsoid is kept unchanged physically (<http://www.mrnf.gouv.qc.ca/territoire/outils/outils-nad.jsp>).

**Voie navigable du St-Laurent / St-Laurent Waterway
Programme d'entretien annuel / Annual Maintenance Program
Montréal à/to St-Antoine**

NAD83 (CSRS)	
Parameter	Value
Reference ellipsoid	<i>GRS80</i>
Semi-major axis (a)	<i>378137.000 m</i>
Semi-minor axis (b)	<i>6356752.314 m</i>
x0	<i>00.00 m</i>
y0	<i>00.00 m</i>
z0	<i>00.00 m</i>
rx	<i>0.00 sec</i>
ry	<i>0.00 sec</i>
rz	<i>0.00 sec</i>
scale factor	<i>1.0000</i>

Contact information for the Canadian Hydrographic Service (CHS), Quebec Region

For all questions regarding the network access to the water level:

Canadian Hydrographic Service
Maurice-Lamontagne Institute
Fisheries and Oceans Canada
850, route de la Mer
C.P. 1000
Mont-Joli, Québec
G5H 3Z4
Telephone: (418) 775-0502 Fax: (418) 775-0654
email: shcinfo@dfo-mpo.qc.ca

Canadian representative of Ashtech company

Gemini Positioning Systems Ltd. is the exclusive representative and distributor of Ashtech products in Canada.

CANAL GEOMATICS
7-183 Chemin Freeman
Gatineau, QC J8Z 2A7
Canada
Téléphone: 1-888-595-5015

email: gempos@gps1.com