Redevelopment of Port Infrastructure in Matane

Summary

Société portuaire du Bas-Saint-Laurent et de la Gaspésie (SPBSG)
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1 General Information

1.1 Project Name, type and location

The Société portuaire du Bas-Saint-Laurent et de la Gaspésie (SPBSG) must undertake redevelopment works on its port infrastructure in Matane due to the deterioration observed during recent inspections. The organization intends to take advantage of these works to redevelop its port infrastructure by adding a second berth and performing dredging in the harbor to ensure optimal and safe operations for users.

Project Name: Redevelopment of Port Infrastructure in Matane

1.2 Project Promotor

The SPBSG has been mandated since March 2020 by the ministère des Transports et de la Mobilité durable (MTMD) to manage maritime development at the Port of Matane, as well as Gros-Cacouna, Rimouski, and Gaspé. Its mission is to ensure the operation, maintenance, and upgrading of port infrastructure and its development. The SPBSG's vision aligns with the Government of Quebec's maritime strategy, *Avantage Saint-Laurent*, aiming to contribute to the economic growth of the ports under its responsibility by leveraging synergy and complementarity.

Table 1-1: Project Promotor Contact Information

Element	Contact Information
Name:	Société portuaire du Bas-Saint-Laurent et de la Gaspésie (SPBSG)
Civic Address:	603, avenue Saint-Jérôme, CP. 222, Matane (Québec) G4W 3N1
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Quebec Enterprise Number (NEQ) from the Quebec Enterprise Registrar:	1175308197

1.3 Consultant for Initial Project Description

The Norda Stelo/Englobe Consortium was mandated by SPBSG to prepare the initial description of the Matane port redevelopment project. In addition to producing the Environmental Impact Assessment (EIA) in accordance with Quebec procedures, the Consortium also conducted several other studies, including preliminary engineering, Phase I site environmental assessment, bathymetric surveys, sediment characterization, terrestrial and aquatic naturel environment characterization, atmospheric dispersion modeling, noise study, climate resilience study, and greenhouse gas (GHG) estimation.

Table 1-2: Contact Information of the Consultant Responsible for the EIA

Element	Contact Information
Name:	Consortium Norda Stelo/Englobe
Civic Address:	1015, avenue Wilfrid-Pelletier, Québec (QC) G1W 0C4
Phone Number:	418 654-9600
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Founded in 1963, Norda Stelo is one of the largest multidisciplinary engineering and construction firms in Quebec. It employs more than 950 people across 10 offices throughout the province. Norda Stelo works proactively and with commitment on engineering consulting projects for a diverse clientele from various sectors (government, industrial, municipal, institutional, and commercial). The Environmental, Climate Change and Community Center of Excellence at Norda Stelo brings together a team of biologists, geologists, geographers, geomorphologists, engineers, geomatics specialists, and environmental and planning professionals with a wide range of expertise.

Active for more than 50 years in the environmental field, Englobe stands out for its comprehensive range of services, its pan-Canadian presence, and its tailored approach, from consulting to turnkey project delivery. Englobe has a multidisciplinary team of engineers and professionals working in five main activity areas: soils and materials, environment, treatment, management and recovery, building science, and supply quality. Many of Englobe's specialists work in the field of Environmental Impact Assessments (EIAs) and sustainable development.

1.4 Public Participation Process

1.4.1 Public

1.4.1.1 Conducted Activities

Since its creation in 2020, SPBSG has implemented several initiatives to foster harmonious relationships with various stakeholder groups representing the host community and potentially affected by its activities at the Port of Matane. As a certified member of Green Marine since 2022, SPBSG has also committed to maintaining or continuously improving the quality of its relationships with community stakeholders, notably by promoting open and transparent communication.

In continuity with its overall public participation approach, SPBSG undertook a process specific to this project. By integrating, as the project progressed, the concerns and comments of the various stakeholders consulted, SPBSG aimed to design a project that fits as harmoniously as possible into the host environment. In total, eight stakeholder categories were identified, and about fifty were consulted between winter 2022 and fall 2024 (Table 1-3). To keep them informed about planned activities throughout the public participation process, SPBSG deployed various communication tools, including newsletters, invitation letters, a dedicated project webpage, and posts on SPBSG's social media channels.

The public participation process consisted of several distinct activities, namely:

- Project announcement, intended to present the project to the community, answer questions, and gather concerns related to the project. A first series of ten meetings took place between February and August 2022, followed by various exchanges with universities and organizations to explore opportunities for reusing dredged sediments.
- Enhancement of the EIA, which occurred during 2024. This third consultation phase aimed to present and validate, with stakeholders, the issues identified in the context of the provincial EIA, anticipated impacts, and proposed mitigation measures.
- Online consultation, designed to give a broader segment of the population an opportunity to express their views on the project. Held from November 26 to December 22, 2024, this online consultation sought to collect comments, suggestions, and concerns regarding issues identified in the provincial EIA.

Table 1-3: Stakeholders Identified and Consulted during the Public Participation Process

Catogory	Stakeholder
Citizens	– Individuals residing in the city of Matane – Citizens of La Matanie pour l'environnement
Educational and Research Institutions	– Biopterre – Centre de simulation et d'expertise maritime (CSEM) – Réseau Québec Maritime (RQM) – Technopole maritime du Québec – Université Concordia
Economic Development Organizations	– Caisse Desjardins de La Matanie – Chambre de commerce et d'industrie de La Matanie – Développement économique Matanie – Société d'aide au développement des collectivités (SADC) de la région de Matane (Synergie Matanie)

Table 1-3: Stakeholders Identified and Consulted during the Public Participation Process (next)

Category	Stakeholder
Environmental Organizations	– Association des chasseurs et pêcheurs de la Région de Matane – Conseil régional de l'environnement du Bas-Saint-Laurent (CREBSL) – Comité ZIP du Sud-de-l'Estuaire – Groupe environnemental Uni-Vert région Matane – Organisme des bassins versants du Nord-Est du Bas-Saint-Laurent (OBVNEBSL) – Société de gestion de la rivière Matane (SOGERM) – Société pour la nature et les parcs (SNAP Québec)
First Nations	– Wolastoqiyik Wahsipekuk First Nation – Mi'gmawei Mawio'mi Secretariat (SMM)[1]
Government Representatives	– Office of the Federal Member of Parliament for Avignon-La Mitis-Matane-Matapédia; – Office of the Provincial Member of the National Assembly for Matane-Matapédia – Fisheries and Oceans Canada (DFO) – Ministère des Transports et de la Mobilité durable (MTMD)

Municipal Representatives	– City of Matane:
	  – Elected officials (mayor and councillors)
	  – Administrative team members
	– Municipality of Sainte-Paule
	– Municipalité régionale de comté (MRC) de La Matanie:
	  – Elected officials (council of mayors)
	  – Administrative team members

Commercial Users of the Port of Matane	– Matane Fishing Harbor Port Authority – Béton provincial – Canadien National (CN) – CEG Construction – Destination Haute-mer (usager du Saint-Laurent seulement) – Duravit – Fruits de Mer de l'Est du Québec (FMEQ) – Groupe Rioux (usager potentiel) – JMN (fournisseur de services) – Les Barges de Matane – Les pêcheries Vallée Inc. – Logistec – Marmen (usager potentiel) – Méridien Maritime – Naval Inc. – Navigation Maluje – Pêcherie Georges Huard – Pêcherie Lévesque Inc. – QSL – Sappi – Société des traversiers du Québec (STQ) – Verreault Navigation (usager du Saint-Laurent seulement)
Neighbors of Port Infrastructure	– Residents living along a section of Matane-sur-Mer Street from 750 m west of the port infrastructure to about 1.5 km east of them

1. The Mi'gmawei Mawio'mi Secretariat (MMS) is the administrative body that carries out the work prescribed by the Mi'gmawei Mawio'mi Assembly (MM), which brings together the chiefs and councillors of three communities: Gesgapegiag, Gespeg, and Listuguj.

1.4.1.2 Summary of Concerns

The public participation process implemented by SPBSG in the context of the Matane port infrastructure redevelopment project has gathered numerous comments, concerns, and suggestions since its inception in 2022. This information was grouped according to the main themes addressed (Table 1-4). Analysis of the collection data revealed that the primary concerns of the host community regarding the project are:

- Potential effects of dredging and open-water disposal of sediments on marine mammals and certain fish species.
- Maintaining operations for commercial port users during the construction phase.
- Potential nuisances experienced by neighbors of the port infrastructure during the works.
- Potential effects on regional economic activities and development if the Matane port redevelopment project does not proceed.

Table 1-4 : Main Comments, Concerns, and Suggestions collected during the Public Participation Process

Theme	Needs and Concerns
Protected Area	– Consideration of the reserve of territories for protected areas.
Climate Change	– Participation in the ARICO research project (Adaptation to Coastal Risks) by UQAR. – Integration of climate change considerations in the EIA and project engineering.
Compensation	– Establishment of a list of habitat compensation projects with relevant ministries. – Implementation of environmental compensation through a local project rather than financial contributions.
Contamination	– Consideration of abandoned pipelines as a potential source of contamination during works.
Sediment Dredging	– Conducting a biological characterization of the open-water disposal site. – Analysis of different dock layout solutions to limit dredging requirements in the harbor. – Consideration of sediment dispersion during open-water disposal and its potential effects on certain species (crabs, lobsters, whelks). – Use of dredged sediments. – Application of bioremediation for managing contaminated sediments.
Costal Erosion and Flooding	– Assessment of the potential effect of breakwater riprap on wave energy redirected toward Matane-sur-Mer possibly worsening natural erosion. – Evaluation of end-effect amplification due to breakwater elevation. – Assessment of the risk of increased coastal flooding caused by the project.
Avian Fauna	– Consideration of impacts on sensitive bird species.
Benthic Fauna	– Application of specific measures to promote natural recolonization by benthic fauna at dredging and disposal sites. – Monitoring of benthic fauna at dredging and disposal sites. – Implementation of mitigation measures to limit potential effects related to dredging activities.
Greenhouse Gases (GHG)	– Electrification of equipment to reduce GHG emissions. – Consideration of limiting GHG emissions during works. – Accounting for induced CO_2 emissions and their origin in material selection for backfill. Assessment of CO_2 emissions associated with additional trucks.
Information and Consultation	– Involvement of the Chamber of Commerce in the consultation process. – Engagement of the population and hoteliers who have already expressed complaints about nuisances. – Dissemination of project-related information in an accessible manner for Matane residents. – Email distribution of project and work updates to nearby residents and organization of one or two information meetings per year with SPBSG.

Table 1-4: Main Comments, Concerns, and Suggestions collected during the Public Participation Process (next)

Theme	Needs and Concerns
Infrastructure	– Coordination with STQ for the use of the commercial dock as an emergency berth for the ferry. – Coordination between organizations and the port for dock repairs. – Optimization of storage areas required for port operations. – Provision of at least 30 m clearance between the façade of the building used by QSL and the projected dock. – Relocation of lighting poles, electrical conduits, and drainage as far as possible from storage and circulation areas. – Installation of an independent water supply for the Fruits de Mer de l'Est du Québec plant due to its sensitivity to water flow. – Installation of a lifting area near the middle of the current dock or at dock no. 2. – Electrical connection for ships and conveyors, including frequency conversion for ships. – Installation of electrical infrastructure at dock no. 3 for tugboats. – Installation of a concrete base for a future liquid pumping pipeline. – Maintenance of the guardhouse in its current position to avoid difficulties for suppliers. – Arrangement of lighting towers so they do not obstruct operations.
Natural Environment	– Conducting a biological characterization of the Port of Matane.
Marine Mammals	– Consideration of effects on blue whales and belugas, two endangered species. – Use of bubble curtain method to limit noise impact on marine mammals. – Reduction of noise generated during open-water sediment disposal. – Consideration of effects on seals. – Assessment of how vibrations from sediment dumping could influence marine species migration. – Evaluation of effects on marine mammals due to reduced food availability during dredging. – Compliance with the 400 m stop-work rule in the presence of marine mammals.
Navigation	– Consideration of the proximity of the project to STQ infrastructures. – Consideration of the fact that fishermen currently must pass near the inner breakwater because there is a risk of grounding if they go farther. – Consideration of navigation risks associated with a dock no. 2 that would be longer than the breakwater, forcing the relocation of the navigation channel used by fishermen. – Reduction of water agitation in the harbor area near the commercial fishermen's dock associated with a dock no. 2 longer than the breakwater, which could increase ice accumulation in March during the resumption of fishing activities. – Possibility of ice accumulation in the 90° angle of dock no. 2. – Installation of a buoy to clearly identify the fishermen's access channel. – Consideration of the fact that the eastern end of the fishermen's dock is dangerous during storms due to water agitation. – Maintaining the length of vessels that can use the Port of Matane with the new infrastructures without requiring tug services. – Use of fenders adapted to the diversity of vessels.

Table 1-4: Main Comments, Concerns, and Suggestions collected during the Public Participation Process (next)

Theme	Needs and Concerns
Nuisances	– Consideration of complaints from residents and hoteliers regarding current port operations. – Concern about noise generated by construction, based on past experiences during previous works at the Port of Matane. – Concern about noise from pile driving and demolition activities. – Increase in trucking due to higher cargo volumes and port operation schedules. – Assessment of project impacts on transportation and road network during and after construction (trucking, snow removal operations, etc.). – Evaluation of safety at the intersection of Matane-sur-Mer Street and Port Street. Truck traffic on Matane-sur-Mer Street. – Management of the intersection of Port Street with Route 132. – Reduction of light pollution for residents near the port caused by dock lighting. – Potential issues from prevailing winds affecting bulk storage areas relative to businesses and residences. – Assessment of the visual impact of raising the breakwater for nearby residents.
Work Period	– Coordination of dredging works with STQ and rail ferry activities. – Possibility of shortening the construction schedule and performing some works during winter. – Commercial users' operations must not be hindered or stopped during construction. – Storage of bulk cargo in the port during construction of the second berth. – Possibility of accessing the barge dock on the fishermen's side during works. – Concern about daily start and end times for works. – Requirement for contractors not to start work before 7:00 a.m. – Duration of works (5 years) and potential effects on lobster and crab fishing grounds. – Ensuring measures are applied to prevent accidental spills during works.
Economic Benefits	– Assessment of job creation linked to the development of port activities. – Perception that the Matane port redevelopment project will benefit regional economic development. – Consideration of cumulative effects of other planned projects in the area, particularly on contractor and raw material availability and costs, as well as accommodation capacity for workers. – Assessment of housing impacts, especially post-construction.
Health and Safety	– Installation of a positioning light at the end of the new dock and storage area to ensure navigation safety. – Consideration of certain safety issues during reconstruction of dock no. 1 while maintaining operations at dock no. 2. – Addition of a second guardhouse at the fishermen's dock due to safety concerns with the current guardhouse location.
Salmon and Matane River	– Assessment of potential effects of sediment plumes on the Matane River and salmon. – Consideration of salmon migration periods to determine dredging schedule.
Land Use	– Alignment with planning tools for land use by the city and the MRC, particularly regarding uses planned in the port sector. – Limiting access for non-users by relocating the guardhouse further south, given maneuvering difficulties during peak dock traffic. – Accessibility of infrastructure for recreational fishing. – Vehicle access to ensure equitable access for all recreational users.

1.4.2 First Nations

1.4.2.1 Conducted Activities

The public participation process implemented by SPBSG also included separate meetings with the two First Nations concerned by the project: the Wolastoqiyik Wahsipekuk First Nation (PNWW) and the Mi'gmawei Mawio'mi Secretariat (MMS), which represents the Mi'gmaq communities of Gesgapegiag, Gespeg, and Listuguj.

SPBSG has maintained relations with PNWW for some time, as the Nation conducts activities near SPBSG-operated infrastructure at Gros-Cacouna. Specifically for this project, an initial in-person meeting was held on October 28, 2022, with PNWW representatives, followed by another on November 21, 2023, with commercial fishers. These meetings allowed SPBSG to present the project and its components and better understand PNWW activities, particularly commercial fishing near the Matane port infrastructure. Some concerns were raised during these meetings. A meeting scheduled for December 2024 to discuss the EIA was postponed by PNWW. On February 11, 2025, PNWW confirmed by email that it had no additional comments or concerns regarding the Matane port redevelopment project.

As for the Mi'gmaq, an initial meeting was held on November 23, 2023, with MMS representatives, marking the start of a desired long-term relationship with the communities. This meeting, held at MMS offices in Listuguj, allowed SPBSG representatives to introduce themselves and present the project. A site visit to the Matane port infrastructure took place on February 8, 2024, with an MMS representative to better understand port activities and the proposed project. Another meeting was held on December 11, 2024, to provide an update on the project, anticipated impacts, and proposed mitigation measures, and to gather MMS concerns and feedback on mitigation measures.

Aside from commercial fishing, SPBSG was unable to obtain further information on Mi'gmaq activities near the Matane port. MMS shared some concerns on February 12, 2025, mainly regarding measures to prevent accidental hydrocarbon spills (including emergency response kits on-site) and to limit sedimentation from demolition or construction works in the harbor. MMS also requested site visits during construction.

1.4.2.2 Summary of Concerns

Specific to the First Nations consulted during the public participation process for the Matane port redevelopment project, comments and concerns—though limited—were mainly related to fishing practices and cumulative effects with port activities at Gros-Cacouna (Table 1-5).

Table 1-5: Main Comments, Concerns, and Suggestions collected during the Public Participation Process (next)

Theme	Needs and Concerns
Presence and Land Use by First Nations	– Proximity of PNWW fishing zone to the breakwater and potential impact on this activity. – Possible disruption of port activities at Gros-Cacouna during works at Matane.

1.4.3 SPBSG Commitments

The public participation process provided SPBSG with an opportunity to present several commitments related to the Matane port infrastructure redevelopment project (Table 1-6). One of these commitments was to complete the environmental assessment process by integrating, as much as possible, the results of the public participation process into the provincial EIA. In this regard, the information obtained made it possible to:

– Identify concerns and integrate them into the impact assessment process structured by issues.

– Include local knowledge.

– Analyze comments and suggestions and take them into account.
– Enable stakeholders to contribute to improving the project and identifying mitigation measures.

Specifically, regarding First Nations, SPBSG organized a site visit to the Matane port with an MMS representative during drilling work required for sediment characterization (Table 1-6).

Table 1-6: SPBSG Commitments resulting from the Public Participation Process

Concerns Expressed, Follow-ups Requested, and Suggestions from Participants	Commitments and Mitigation Measures proposed by SPBSG
Reuse of dredging sediments	– Discussion with research institutes on reuse possibilities.
Nuisances from port operations for neighbors of the infrastructure	– Awareness campaign for truck drivers circulating at the Port of Matane to avoid Matane-sur-Mer Street, respect speed limits and signage, and limit engine brake use. – Discussions with the City of Matane regarding port access road.
Drilling work	– Site visits during drilling work required for sediment characterization.

1.5 Links with Other Programs, Policies and Plans

The Matane port infrastructure redevelopment project is part of a series of government policies and orientations, the three main ones being:

– Plan for a Green Economy 2030 (Government of Quebec, 2020),
– Sustainable Mobility Policy – 2030 (MTMDET, 2018),
– *Avantage Saint-Laurent*, Quebec's new maritime vision (MTQ, 2021).

At the federal level, only one study relates to the project: the Strategic Environmental Assessment of the St. Lawrence River Region. Conducted jointly by the Impact Assessment Agency of Canada and Indigenous partners, this regional assessment is underway to better understand the potential effects of past, present, and future developments.

2 Project Information

2.1 Context and Project Rationale

2.1.1 Importance of Maritime Transport

2.1.1.1 In Québec

Maritime transport is the most widely used mode of transportation worldwide. Globally, 80% of consumer goods purchased in Western countries and 70% of global oil production are shipped by sea. In Quebec, the St. Lawrence Seaway represents one of the longest inland deep-water routes, covering 1,700 km within Quebec's territory. This corridor is a major economic driver for the province. In 2022, Quebec ports imported goods valued at CAD $63 billion and exported $24 billion, contributing $364.9 million to Quebec's Gross Domestic Product (GDP; IMAR and SODES, 2023).

The Quebec maritime sector includes 490 establishments supporting 15,230 direct jobs—36% in navigation and 64% in land-based professions—illustrating the intermodal nature of maritime transport. Shipyards employ 2,040 workers across 11 major companies located in Montreal, Quebec City, Charlevoix, Bas-Saint-Laurent, Gaspésie, and Îles-de-la-Madeleine, along with smaller specialized firms. Among the most notable is the Davie Shipyard in Lévis, Canada's largest and oldest shipyard, recognized for its economic contribution through integration into the federal National Shipbuilding Strategy (Deloitte, 2022).

Along the St. Lawrence Seaway, ports and their infrastructure play a strategic role in Quebec's economic and social development, creating numerous direct and indirect jobs and facilitating the movement of goods and passengers. Including Saguenay, there are 35 ports with commercial activities other than fishing along the St. Lawrence (IMAR and SODES, 2023). These ports offer various services depending on size, as well as intermodal rail and road connections.

Although cargo tonnage handled at ports fluctuates with global economic trends, it has shown growth—from 117 million tonnes in 2010 to nearly 154 million tonnes in 2021. Most cargo consists of solid bulk, followed by liquid bulk. Key commodities include grain, iron ore, machinery and equipment, containers, salt, sugar and cocoa, petroleum products, and chemicals. Minerals account for 80 million tonnes—over half of the 153 million tonnes handled in 2022—followed by grains at 13.6 million tonnes. In 2022, more than 82% of maritime trade was with North America, Northern Europe, and the Mediterranean.

Ports under SPBSG jurisdiction include Gros-Cacouna, Rimouski, Matane, and Gaspé. These Quebec-owned ports saw tonnage rise from 0.64 million tonnes in 2018 to 0.80 million tonnes in 2021—a 25% increase. Cargo is mainly solid bulk (about 70%), followed by liquid bulk (about 30%). According to an economic impact study of Quebec's maritime industry (ADEC, 2012), Bas-Saint-Laurent ranks among the top five regions benefiting most from maritime sector spinoffs in terms of jobs and GDP.

The St. Lawrence Seaway also serves passenger transport. In 2021-2022, ferry services carried nearly 4 million passengers. At Matane, ferries transported 139,074 passengers.

Finally, 42.6% of Quebec's total Greenhouse gases (GHG) emissions in 2021 (33.1 out of 77.6 Mt CO_2 eq.) came from the transportation sector, with maritime transport accounting for only 0.9%.

2.1.1.2 In Matane

The Port of Matane and the Matane industrial park form a true industrial-port zone contributing to the economy of the city, the region, and Quebec as a whole. This zone hosts about 80 businesses, many of which use port services to ship or receive various products such as pulp, materials, wind turbine components, and prefabricated structures (KPMG, 2024). Between 2019 and 2023, the average annual handled volume was 311,000 tonnes, with an occupancy rate above 50% (classified as a busy port) for seven to nine months per year.

The port supports 1,144 direct and indirect jobs and generates $166.8 million in GDP and $20.5 million in annual tax revenues (KPMG, 2024).

Furthermore, KPMG (2024) analyzed opportunities related to increasing port traffic at Matane. These opportunities focus on transporting wind turbine components, construction materials and equipment, manufacturing materials, prefabricated structures, various bulk cargo, solar components, hydraulic groups, and industrial projects. Only short- and medium-term potentials were considered. The identified opportunities suggest an average growth potential of about 26% by 2028, representing additional capacity needs estimated at 82,300 tonnes per year.

2.1.2 Situation at the Port of Matane

The current traffic and identified growth opportunities must be considered in light of the existing condition of port infrastructure at Matane. Beyond the high occupancy rate, which leaves little room for growth—especially during peak periods from April to November—the structural condition of the commercial dock is a critical limitation.

2.1.2.1 Structural Condition of the Commercial Dock

Several structural studies have shown that the port infrastructure in the commercial dock sector is nearing the end of their useful life (Transport Canada, 2018; Tetra Tech, 2019; Norda Stelo, 2022; CIMA+, 2020; 2023). According to the latest load-bearing capacity assessment (CIMA+, 2023), the load restrictions imposed in 2018 (current certified capacity of 21 kPa) for safety reasons remain valid. This confirms that the existing dock does not have the structural capacity required for a typical commercial dock (minimum capacity of 50 kPa). A recent visual inspection (Lasalle | NHC, 2024) also revealed deterioration of several breakwater riprap sections and indicated that the structure is vulnerable to wave overtopping—a situation expected to worsen under future climate conditions due to

rising sea levels caused by climate change. Over the years, several reinforcement interventions have been carried out to extend the dock's life and ensure safe operations. However, the reduced load-bearing capacity has further limited the types of cargo that can be handled. Despite these measures, structural elements of the commercial dock are expected to reach their residual life by 2033 under current conditions.

2.1.2.2 Operational Constraints

The reduced structural capacity of the current commercial dock creates significant constraints for port activities, particularly during loading and unloading operations, storage, circulation on the dock, and user safety.

Material storage must be spread across several areas in the southern storage zone to facilitate equipment movement during unloading and transport. Consequently, multiple material piles obstruct other activities, including circulation. In some cases, traffic must be diverted behind the existing building, where space does not allow two heavy vehicles to pass simultaneously. This lack of space for transshipment during loading and unloading contributes to congestion and unsafe circulation due to numerous blind spots and limited maneuvering space for carriers.

Moreover, the average annual cargo volume handled at the commercial dock was 310,600 tonnes between 2019 and 2023 (SPBSG data). Considering the theoretical loading/unloading capacity of a dock (500 to 1,000 t/year per linear meter; Schoonees, 2024), the commercial dock's utilization is 1.7 to 3.3 times higher than its estimated handling capacity (93,000 to 186,000 t/year). This dock is therefore insufficient for Matane's port needs for efficient and safe operations.

In addition to exceeding its maximum handling capacity, the commercial dock is heavily trafficked. Between January 2020 and August 2023, 232 vessels docked at Matane's commercial dock—about six vessels per month. Average dock occupancy per vessel is four days, excluding weather-related delays.

These operational constraints significantly reduce productivity and attractiveness of the commercial sector at Matane's port. They alone justify the redevelopment project to enable SPBSG to meet growing maritime industry needs efficiently and safely, while supporting Quebec's GHG reduction objectives.

2.2 Required Authorizations

The project may be subject to a federal impact assessment under the *Impact Assessment Act (IAA)*. Indeed, the project is considered a designated activity under the *Physical Activities Regulations* pursuant to section 53 of the IAA.

In addition, the implementation of this project will require prior approval from several government authorities, the main ones being:

- Authorization from the Government of Quebec (decree) issued at the end of the provincial *Procédure d'évaluation et d'examen des impacts sur l'environnement* (PEEIE) provided for in sections 31.1 and following of the *Environment Quality Act* (EQA).
- One or more ministerial authorizations issued by ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) under section 22 of the EQA and/or one or more declarations of compliance under the regime provided for by decree pursuant to section 31.6 of the EQA.
- Authorization from Fisheries and Oceans Canada (DFO) under the *Fisheries Act*.
- Authorization from DFO (small craft harbors) if the fishermen's dock needs to be used for transshipment during the works.

– Approval of works issued by Transport Canada under the *Canadian Navigable Waters Act*.
– Resolution confirming compliance of the project with the objectives of the land use and development plan of the MRC de La Matanie, under sections 149 and following of the Act respecting land use planning and development.

2.3 Alternative Solutions to the Project

2.3.1 Proposed Solution

Despite maintenance interventions and investments, the limitations of the structures, their overall condition (end of useful life reached and residual life projected for 2033), combined with strong demand for port services and growth potential, have led SPBSG to propose a redevelopment project for the Matane port infrastructure. With a mandate to ensure the operation, maintenance, upgrading, and development of the Port of Matane, SPBSG intends to continue playing a strategic role in local and regional commercial and economic development. Consequently, the project aims to ensure the long-term continuation of port activities in Matane while providing infrastructure that meet growing market needs.

To achieve this, the proposed solution includes the following activities:

– Construction of a second berth in the commercial sector.
– Development of an additional storage area.
– Reconstruction of the existing berth.
– Capital dredging to ensure safe maneuvers in the harbor.
– Raising of the west breakwater to limit wave overtopping events (including ice and debris projection).

2.3.2 Analysis of Alternative Solutions

Two alternative solutions to the proposed project—redevelopment of port infrastructure by adding a second berth and a storage area—were considered by SPBSG to meet the project objectives:

– Status quo, which is not feasible for ensuring the long-term continuation of port activities in Matane given the residual life of the existing dock estimated at 2033. This option would inevitably lead to the abandonment of commercial port activities, resulting in significant local and regional economic decline. This impact is even more critical considering the strategic role of the Port of Matane as an intermodal hub within the industrial-port zone.
– Reconstruction of the existing commercial dock, which consists of redevelopment current port infrastructure without increasing storage space or adding a second berth. This option would allow long-term continuation of port activities by securing the structures, ensuring continuity of operations and avoiding service disruptions for businesses dependent on the commercial dock. However, this solution requires a complete shutdown of port activities for several years during construction, which would have major consequences for dependent businesses. Additionally, this option does not capitalize on short-term investment opportunities, as the dock is already operating beyond its maximum capacity and lacks storage space. Consequently, this solution offers little to no flexibility for regional investment projects that could benefit from intermodality to improve economic performance and reduce transport-related GHG emissions.

2.4 Project Description and Implementation Options

2.4.1 Determination of Project Component Options

During the preliminary phase, SPBSG conducted technical and environmental studies, carried out several field inventories, and held meetings with various stakeholders to determine the option with the least environmental impact for the redevelopment of port infrastructure in Matane. The option study was based on two fundamental principles:

– Ensure the best possible integration of structures into the natural and human environment.

– Reduce project implementation costs.

These principles required the development and selection of general criteria related to design, location, construction, and maintenance of port infrastructure, as well as other project components (dredging, sediment management method, and raising of the west breakwater).

The redevelopment of port infrastructure in Matane must therefore meet technical, economic, environmental, and social design criteria. Some criteria aim to avoid, as much as possible, areas of the study area that present constraints and sensitivities regarding the installation of projected infrastructure. Conversely, other criteria seek elements or areas favorable to the integration of the proposed infrastructure.

To achieve the project objectives, the main criteria guiding the design of the Matane port infrastructure redevelopment project were inspired by three key issues (Table 2-1). For each project component for which options were studied (berth configuration, dredging, sediment management method, and elevation of the west breakwater), a rigorous comparative analysis was carried out based on these criteria to guide decision-making. For each comparative analysis, various environmental, social, technical, and economic criteria were selected to lead to the choice of a preferred option.

Table 2-1: Project Design Criteria based on Project Issues

Issue	Design Criteria
Protection of coastal and marine habitats and biodiversity	– Avoid or minimize encroachment on aquatic environments. – Avoid or minimize disturbance or habitat loss for species of interest. – Avoid or minimize management of contaminated sediments. – Avoid or limit dredging needs and maintenance frequency.
Maintaining living conditions	– Limit construction duration to reduce nuisances for residents of adjacent streets and harbor users.
Balancing uses	– Ensure durability of infrastructure and minimize maintenance needs. – Ensure safe navigation conditions in the harbor for all users. – Avoid or limit disruption of commercial fishing activities. – Minimize construction site footprint to maintain current port operations during works.

BERTH CONFIGURATION

Four options were retained for comparative analysis. For all options, the proposed dock structure consists of a combination of wall and sheet piles. Following the comparative analysis, Option 4 (Map 2-1) was selected as the most advantageous for redeveloping port infrastructure in Matane for the following reasons:

– Meets operational requirements, including maintaining continuity of commercial dock activities during works and achieving desired service life.

– Restores load-bearing capacity of 50 kPa to the existing commercial dock by reconstructing and advancing its façade.

– Maximizes storage area (24,200 m²), ensuring safer and more efficient handling operations.
– Significantly reduces dredging volumes and contaminated sediments due to dock positioning, lowering costs for off-site contaminated sediment management and overall construction costs.
– Minimizes temporary disturbance of marine habitat due to smaller dredging areas.
– Offers similar advantages and disadvantages regarding selected social criteria.

DREDGING METHOD

CAPITAL DREDGING REQUIREMENTS

In the context of the port infrastructure redevelopment project in Matane, the capital dredging requirements were assessed based on the selected dock layout option and the navigation area needed to ensure safe vessel movement within the harbor (CSEM, 2024). These requirements are justified by certain design criteria of the chosen layout option, namely:

– Modification of the harbor navigation area to accommodate vessels at the two berths. This navigation area must be designed to ensure a minimum depth of -8.20 m a chart datum (CD) and to cover the maneuvering area required according to the navigability study (CSEM, 2024).
– The minimum water depth required at the two berths (-11,00 m CD).
– The need to relocate the access channel to the fishermen's wharf under the responsibility of DFO. This channel must have a minimum depth of -4,00 m CD to ensure safe passage for fishing vessels.

Based on these design characteristics, a dredging template was generated using a 3D modeling tool (Map 2-1). By combining this with the most recent bathymetric data (Englobe, 2023), dredging is required over 93,334 m² within the harbor, corresponding to an estimated total volume of 202,578 m³ of sediment to be dredged.

According to the modeling of hydro-sedimentary conditions (Lasalle | NHC, 2024), no maintenance dredging will be required within a ten-year horizon following the completion of the capital dredging.

DREDGING METHODS ANALYZED

Dredging of sediments can be carried out using a wide range of equipment and different methods. In general, these dredging methods fall into two main categories: mechanical dredging and hydraulic dredging. Overall, hydraulic dredges work by suctioning sediments, whereas mechanical dredges are designed to excavate materials using buckets or grabs.

These two main categories of dredging methods are further subdivided into several types of equipment and work techniques, each with its own advantages and disadvantages. Therefore, the choice of a preferred method or combination of methods depends on considering a multitude of technical, economic, environmental, and social criteria. Examples include the nature of the project, the type of sediments to be dredged, the depth of the seabed, the characteristics of the marine environment, the potential effects on natural and human components, as well as costs and timelines.

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- Local Study Area
- Expanded Study Area
- Limit of Proposed Option 4
- Dredging Area for Berth #1
- Dredging Area for Berth #2
- Dredging Area for the Navigation Channel at the Fishermen's Wharf
- Dredging area within the Harbor
- Contaminated Sediment Area
- Maritime Connection

Bathymetry *(Englobe, 2023)*

- Isobaths (1 m)

Redevelopment of Port Infrastructure in Matane

Contaminated Sediment Area, Dredging Profile, and Work Zones

NORDA STELO englobe

NOVEMBER, 2025

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Base carto : Maxar, 2022

Map 2.1

Prepared : SN Drawing : MPRO Verified : AT

Map 2-1: Contaminated Sediment Area, Dredging Profile, and Work Zones

In total, three options of sediment dredging methods are proposed: mechanical dredging, hydraulic dredging, and a combination of mechanical and hydraulic methods. Based on the selected criteria, the option that appears to offer significant advantages for carrying out the dredging work in the context of the port infrastructure rehabilitation project in Matane is the one that combines mechanical and hydraulic dredging methods. Indeed, such a combination would allow the entire work to be completed according to project requirements while reducing its duration.

Among the advantages of using this option are:

- The ability to increase dredging speed in the central part of the harbor covered with unconsolidated Class 1 sediments (volume of approximately 20,000 m³). By maximizing the use of the hydraulic dredge, it is possible to shorten the duration of the work and cover most of the area to be dredged, which will help limit conflicts of use for other harbor users. At the same time, the amount of suspended solids will be limited in the harbor by using this type of equipment.
- Mechanical dredging proves more advantageous in areas of the harbor contaminated with Class 2 sediments as well as in deeper layers of consolidated sediments. It will also be better suited for work near the existing and planned docks to achieve the required depths (-11 m CD). Given the consolidated nature of most sediments to be dredged, the release of suspended solids will be reduced in the harbor compared to mechanical dredging carried out in unconsolidated sediments.

SEDIMENT MANAGEMENT APPROACH

According to the sediment characterizations carried out in 2023 and 2024 (Norda Stelo/Englobe Consortium, 2024a), the sediments to be dredged are divided into two classes: Class 1 and Class 2. Of the theoretical volume of 202,578 m³ of sediments to be dredged, a calculated volume of 195,068 m³ has been identified as Class 1, based on the parameters of the St. Lawrence Plan (EC and MDDEP, 2007). The remaining volume to be dredged, 7,510 m³, is Class 2. The total volume of sediments to be dredged (202,578 m³) is also subdivided into 125,872 m³ with a contamination level of "<A," while 76,706 m³ falls within the "A-B" range of generic criteria. It is important to note that one contaminated sediment zone shows a sulfur content ">C," and another zone presents a sulfur content within the "A-B" range. The TDPAS test performed on the sample with a ">C" sulfur content yielded a pH of 7. These results confirm that the Class 2 sediments with the highest sulfur concentrations have no acid-generating potential and are therefore not considered contaminated for land management purposes.

Given the compatibility of Class 1 sediments with open-water disposal and the proximity of the open-water disposal site located offshore from the Matane harbor, as well as considering the constraints associated with other management methods, it is recommended to dispose of the entire theoretical volume of 195,068 m³ of Class 1 material through open-water disposal. By opting for open-water disposal, trucking will be limited to Class 2 sediments, and GHG emissions will be significantly reduced. Consequently, nuisances resulting from increased traffic on Route 132 for sediment management will also be avoided or minimized.

As for the 7,510 m³ of Class 2 sediments, considering the constraints inherent to the Matane port site—particularly its limited space and the distance to the nearest authorized disposal infrastructure—the option of reusing them at local industrial sites appears advantageous. However, given the risks related to the feasibility of reusing sediments at industrial sites near the Matane port, it remains prudent to consider disposing of them at an authorized facility for this purpose. To reduce volumes, mechanical dewatering by centrifugation is planned at a location to be determined within the Matane port site. Giving the volumes to be disposed of off-site and the limited space available for dewatering, it is recommended to proceed with the continuous disposal of dewatered sediments to avoid the temporary accumulation of excessively large volumes of dredging sediments on-site.

WEST BREAKWATER ELEVATION

Considering the deficiencies noted during the visual inspection and the observed vulnerability to overtopping, Lasalle | NHC recommends a complete refurbishment of the armor layer on segments 1 to 3 (Figure 2-1). In this regard, only one option is proposed: raising the west breakwater by adding armor stones. For segments 1 and 2, it is recommended to add two rows of armor stones, while only one row is required for segment 3. Preliminary leveling with filter stones may be necessary. A cross slope of 2H:1V is recommended to ensure better stone stability and match the slope of the existing structure.

The installation of a toe berm at the base of the riprap is also recommended to protect the structure against scour. This berm would be built using armor stones. The recovery and reuse of “Y” blocks are also recommended on the crest to maintain the protection provided by this concrete facing against wave overtopping. As for segment 4, the deficiencies do not require a specific intervention, as they are addressed and integrated into the reconstruction of the existing commercial wharf (Wharf No. 1).

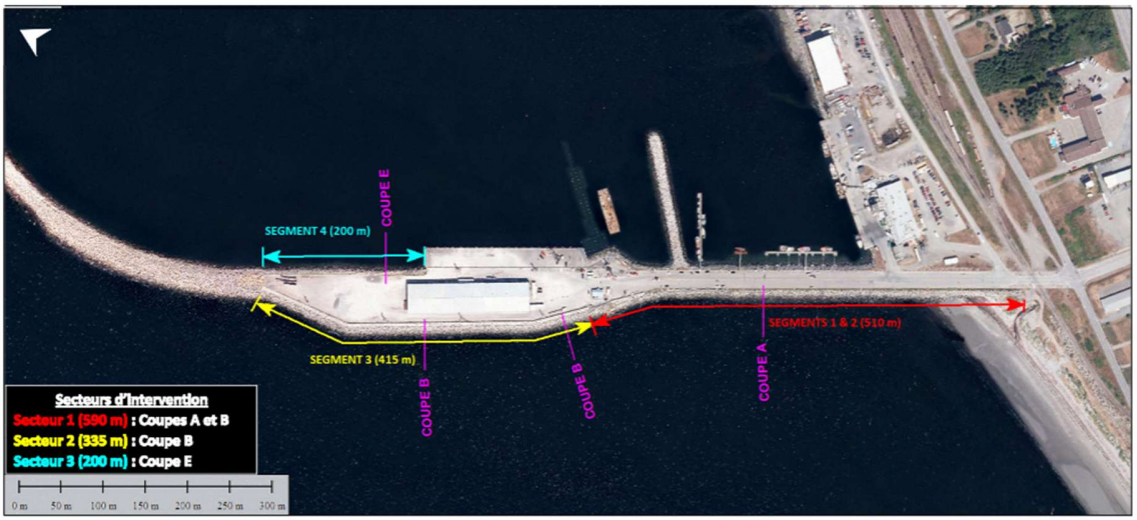
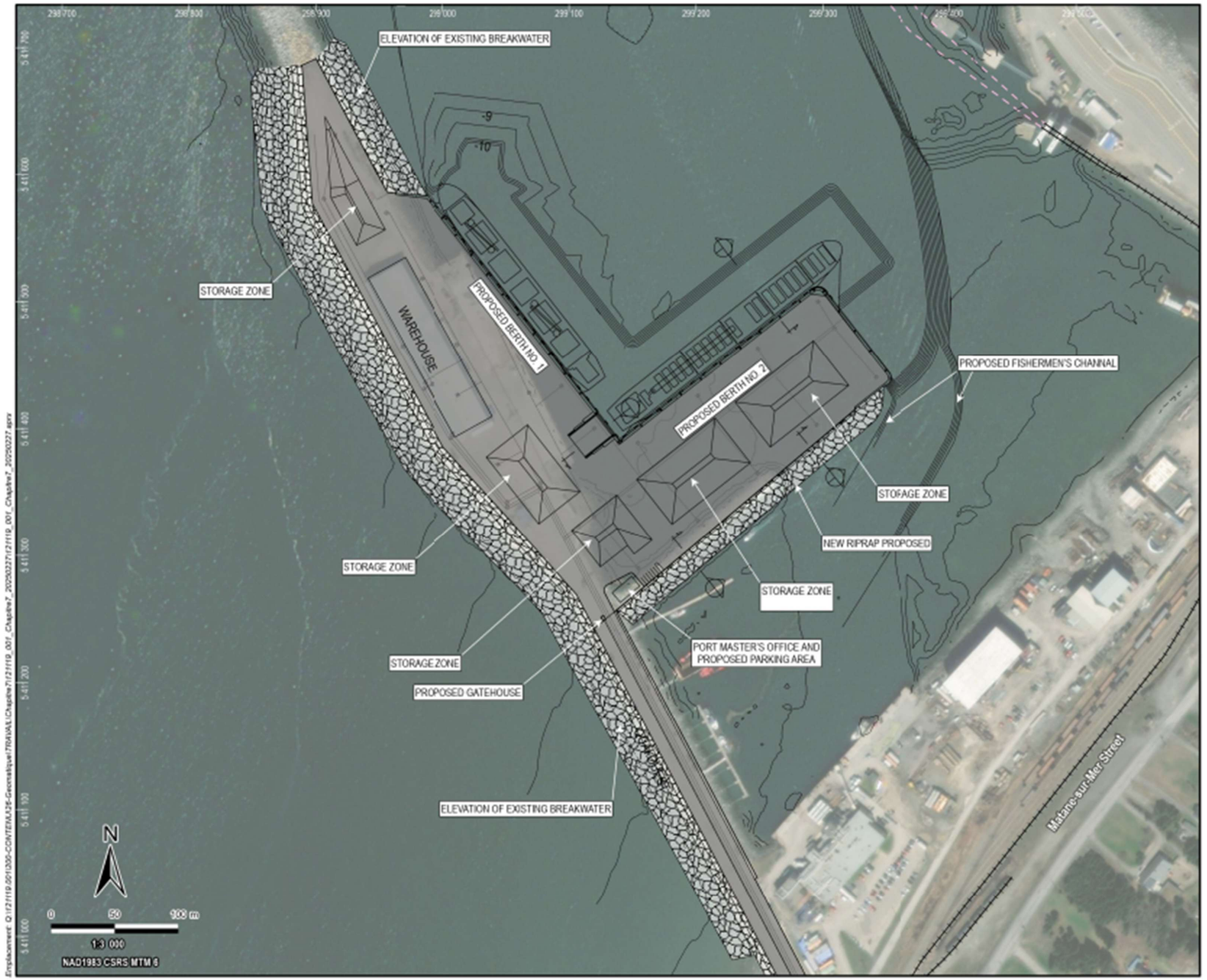


Figure 2-1: Segments of the west breackwater targeted for complete elevation (taken from Lasalle | NHC, 2024)

2.4.2 Description of the Selected Project Activities

This section presents the chosen solution for the redevelopment of port infrastructure in Matane, which will allow for a better assessment of the project’s impact sources and the integration of measures during the design phase to mitigate or even avoid potential effects. Overall, the project includes the following components:

- Construction of a second berth according to configuration B17 (Option 4; Map 2-2): This dock will be installed parallel to the breakwater separating the commercial sector from the fishing sector. The berth will be 200 m long and include a platform 95 m wide along its entire length.
- Reconstruction of the existing commercial dock: It will be rebuilt in front of the current dock and perpendicular to the second berth and will be approximately 60 m longer than the existing dock. This configuration provides a larger storage and operational area compared to the current commercial dock.
- Capital dredging of 202,578 m³, including 195,068 m³ disposed of in open water and 7,510 m³ managed on land, using hydraulic dredging for the looser surface portion and mechanical dredging for consolidated and contaminated sediments.



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- Municipal Boundary
- Local Study Area
- Expanded Study Area

Railroad Network

- Railroad Track
- Transfer Vessel

Redevelopment of Port Infrastructure in Matane

Selected Option (Option 4)

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NOVEMBER, 2025

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Base carto : Mesar, 2022

Map 2.2

Prepared : SN | Drawing : MPRO | Verified : AT

Map 2-2: Selected Option (Option 4)

– Elevation of the west breakwater by adding one or two rows of armor stones depending on the segment of the existing riprap.

The sequence of work and the methods associated with each phase are described in Section 2.4.2.1. Section 2.4.2.2 details activities during the operational phase of the redeveloped infrastructure at the Port of Matane. Finally, Sections 2.4.2.3 and 2.4.2.4 address costs and the implementation schedule, respectively. It should be noted that no activities related to the project closure phase are described, as there are no plans to cease port operations in Matane in the long term.

2.4.2.1 Construction and Development Phase

2.4.2.1.1 WORK SEQUENCING AND METHODS

A phased approach for the construction of the new dock, the reconstruction of the existing commercial dock, and dredging is required to ensure continuity of port activities during the work (Figure 2-2). Special attention was given when developing the work sequence to limit the duration of certain activities carried out in water or generating noise, while also respecting the various applicable restriction periods, namely:

– The restriction period for capelin spawning, from May 25 to July 5.
– The presence of marine mammals throughout the duration of the work.
– The restriction period for bird nesting for riprap work, from April 15 to the end of August.
– The possible period for dredging work is approximately 90 days in the fall.
– The need to maintain port operations in Matane throughout the duration of the work.
– The elevation of the west breakwater could be carried out at any time. It has been planned as the final step to facilitate an overall view of the project.

Each phase is briefly described below.

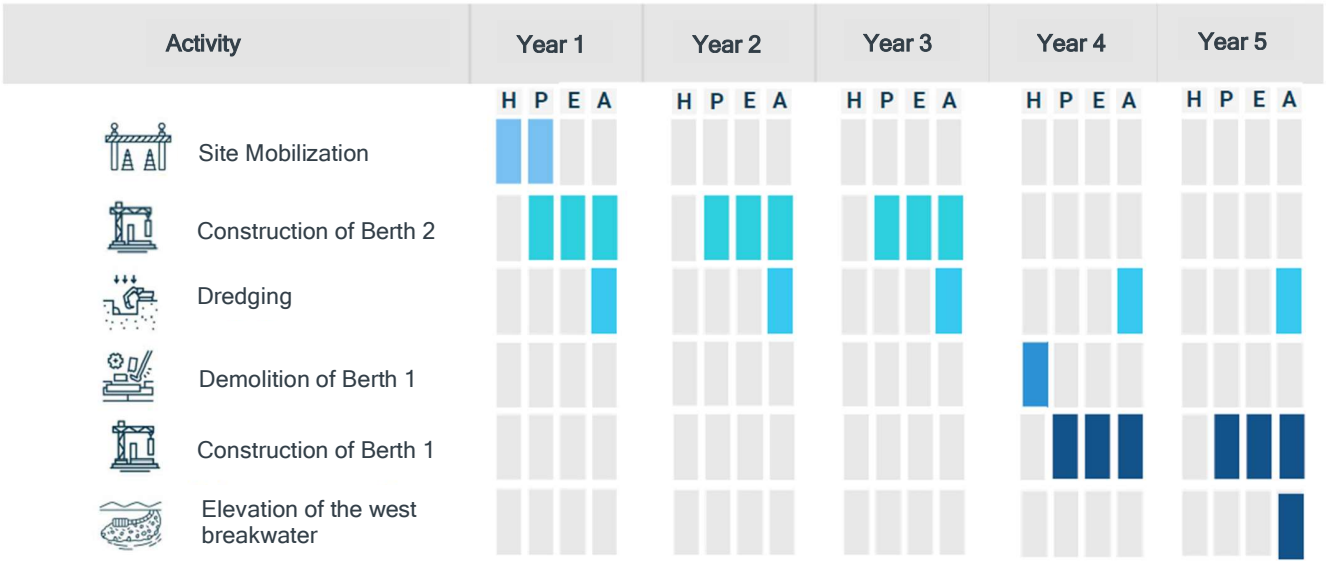


Figure 2-2: Proposed Work Sequence for Project Implementation

PHASE 1 – MECHANICAL DREDGING IN THE FISHERMEN'S CHANNEL

This phase mainly involves starting the capital mechanical dredging of the fishermen's channel area (Map 2-3). It includes the transshipment of contaminated sediments to land-based infrastructure. During this phase, regular activities will continue at the existing commercial dock. Since the construction of the new berth will block the current access channel to the fishermen's wharf, dredging the relocated access channel is the first activity to be carried out to ensure safe operations for fishermen. The objective of this phase is first to remove the 7,510 m³ of contaminated sediments (Class 2) for land-based management (Phase 2). The remaining volume of sediments to be dredged in this area (approximately 31,800 m³) will be transported by barge to the open-water disposal site located offshore from the Matane harbor.

Before transporting and disposing of the contaminated sediments (Phase 2), they will be moved to the existing commercial dock and dewatered to reduce the volume to be transported. Two potential dewatering sites have been identified: either at the northern end of the commercial dock or on a section of the fishermen's wharf (Map 2-3). Currently, it is planned to mechanically dewater Class 2 sediments on-site using a centrifuge, which would separate part of the water from the sediments. As for the water resulting from dewatering, its quality could be monitored and treated on-site before being discharged into the receiving environment. Contaminated water will be transported to an authorized treatment facility for proper handling.

PHASE 2 – MECHANICAL DREDGING OF BERTH NO. 2, MANAGEMENT OF CONTAMINATED SEDIMENTS, AND HYDRAULIC DREDGING OF THE MATANE HARBOR

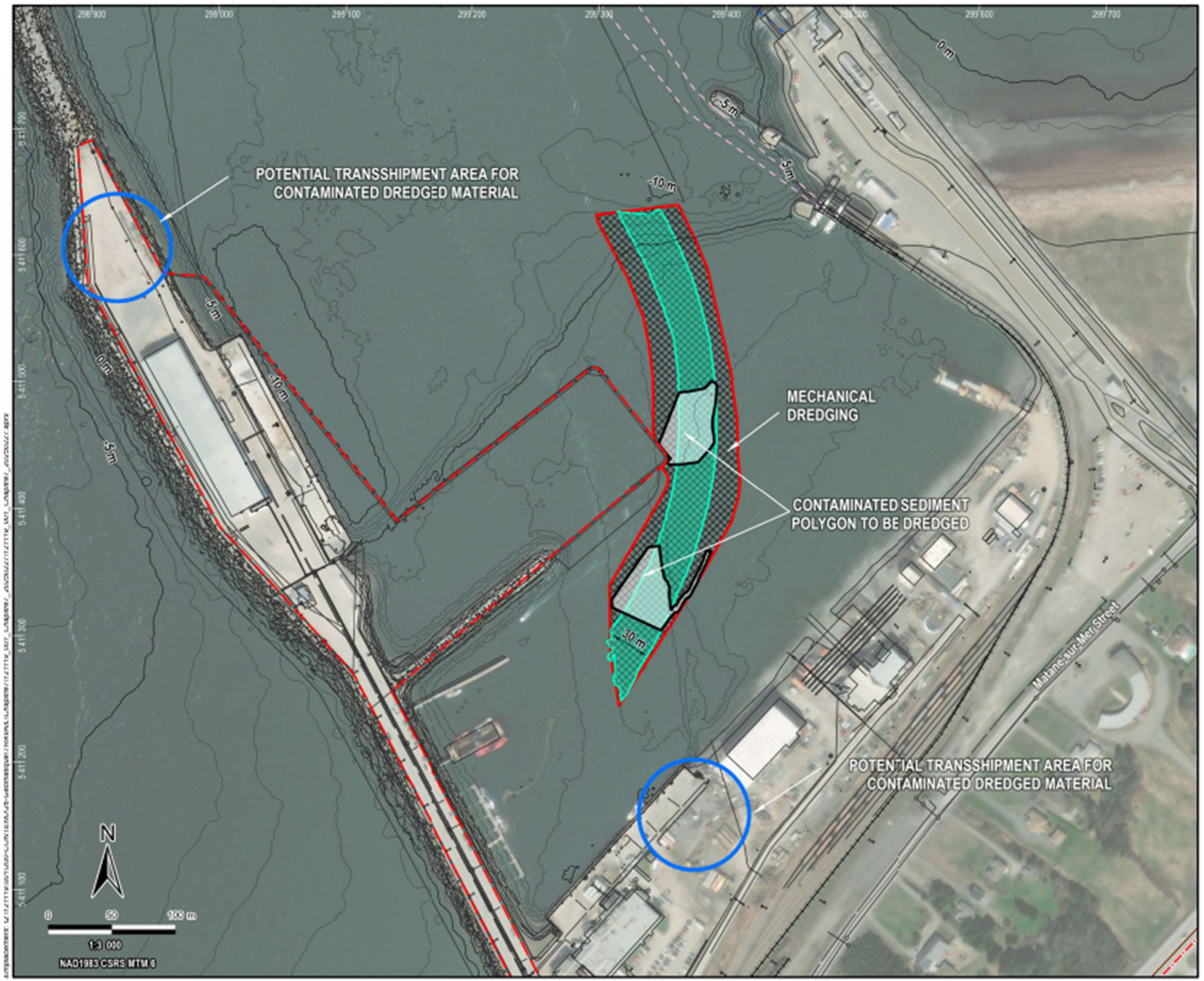
Phase 2 focuses exclusively on dredging and includes the following activities (Map 2-4):

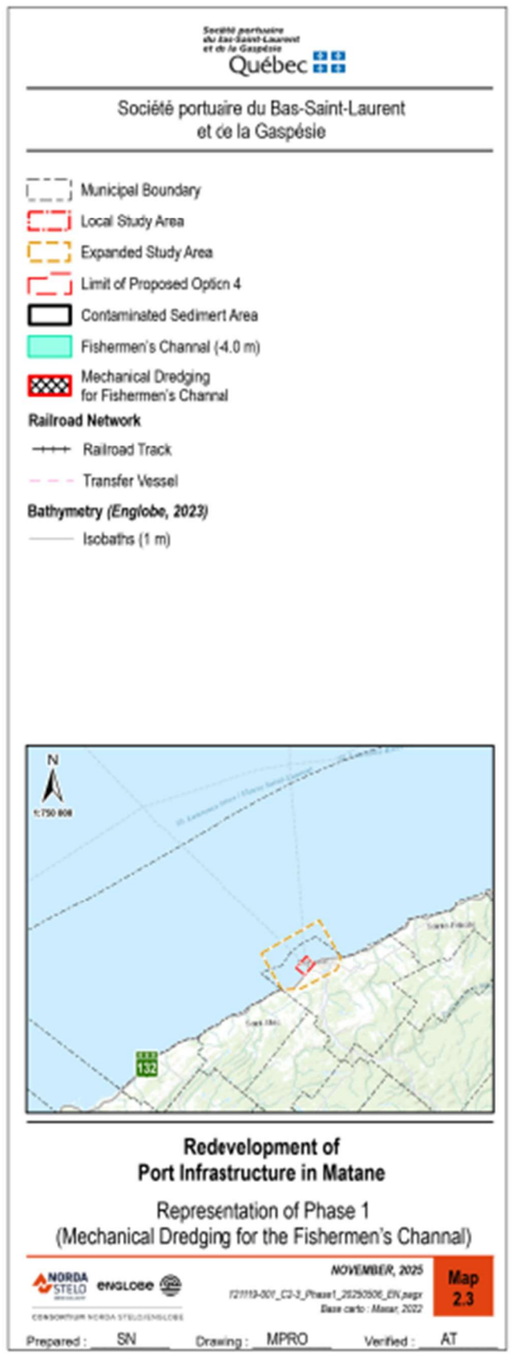
- Mechanical dredging in front of Berth No. 2, which requires a dredge mounted on a barge as well as two tugboats. During this activity, dredging will be carried out down to elevation -10 m chart datum. Dredging from -10 m to -11 m chart datum will be completed during Phase 4.
- Transport by truck of the contaminated sediments dredged during Phase 1 to a soil treatment facility. It is currently planned to send them to the treatment center located near Rimouski. It is estimated that 236 semi-trailer trucks will be required to manage the contaminated sediments off-site, at a frequency of one truck per hour.
- Hydraulic dredging of the Matane harbor using a hydraulic dredge.

PHASE 3 – CONSTRUCTION OF BERTH NO. 2

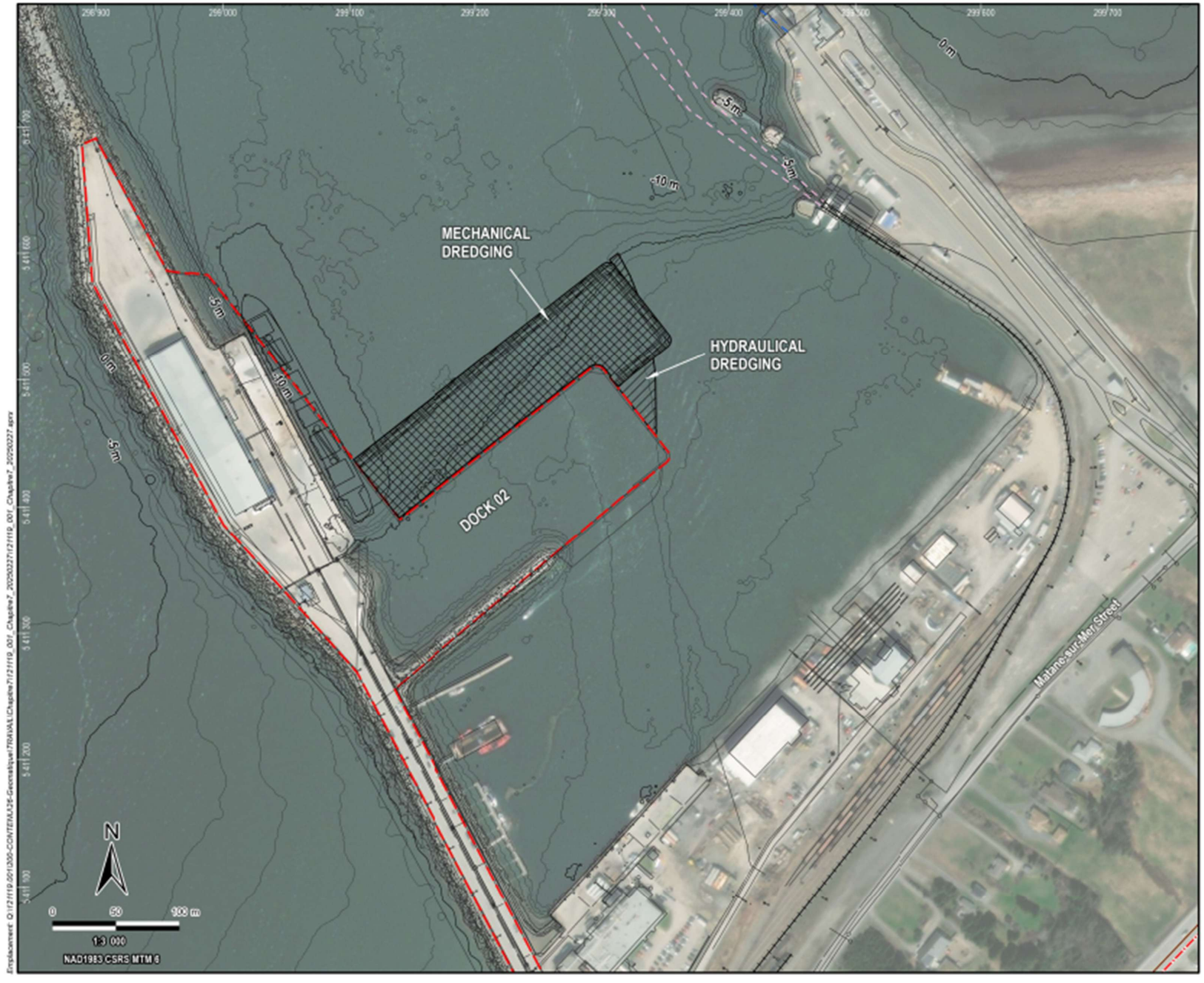
Phase 3 involves the construction of Berth No. 2 and the required work on the access road to the commercial section of the Port of Matane. Specifically, this phase includes the completion of hydraulic dredging in the harbor, installation of piles and sheet piles by vibratory driving and hammering, installation of new riprap at the southwest end, backfilling behind the dock with granular material and completion of riprap up to the planned tie-rod elevation, installation of tie-rods, covering the tie-rods with granular material and riprap up to the desired elevation, installation of stormwater and sanitary pipes and manholes, electrical conduits and service islands, water supply network, mooring bollards and fenders, driving surface and lighting poles, as well as construction of the new harbor master's building (Maps 2-5 and 2-6).

It should be noted that throughout this stage, the existing commercial dock will remain operational for regular activities. However, after Phase 3, Berth No. 2 will be considered completed and will be permanently operational, even during the execution of Phases 4 and 5. At that point, the operational phase for Berth No. 2 will begin.





Map 2-3: Representation of Phase 1 (Mechanical Dredging for the Fishermen's Channal)



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- Local Study Area
- Expanded Study Area
- Limit of Proposed Option 4
- Mechanical Dredging
- Hydraulical Dredging

Railroad Network

- Railroad Track
- Transfer Vessel

Bathymetry *(Englobe, 2023)*

- Isobaths (1 m)

Redevelopment of
Port Infrastructure in Matane

Representation of Phase 2
(Mechanical and Hydraulical Dredging at Berth No. 2)

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NOVEMBER, 2025
121119-001_C2-4_Phase2_20250506_EN.pptx
Base carto : Mawar, 2022

Map 2.4

Prepared : SN Drawing : MPRO Verified : AT

Map 2-4: Representation of Phase 2 (Mechanical and Hydraulical Dredging at Berth No. 2)

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Local Study Area

Expanded Study Area

Limit of Proposed Option 4

Railroad Network

Railroad Track

Bathymetry *(Englobe, 2023)*

Isobaths (1 m)

Redevelopment of
Port Infrastructure in Matane

Representation of Phase 3
(Construction of Berth No. 2 and Installation
of Service Systems)

NORDA STELO | ENGLOBE

CONSORTIUM NORDA STELO/ENGLOBE

NOVEMBER, 2025

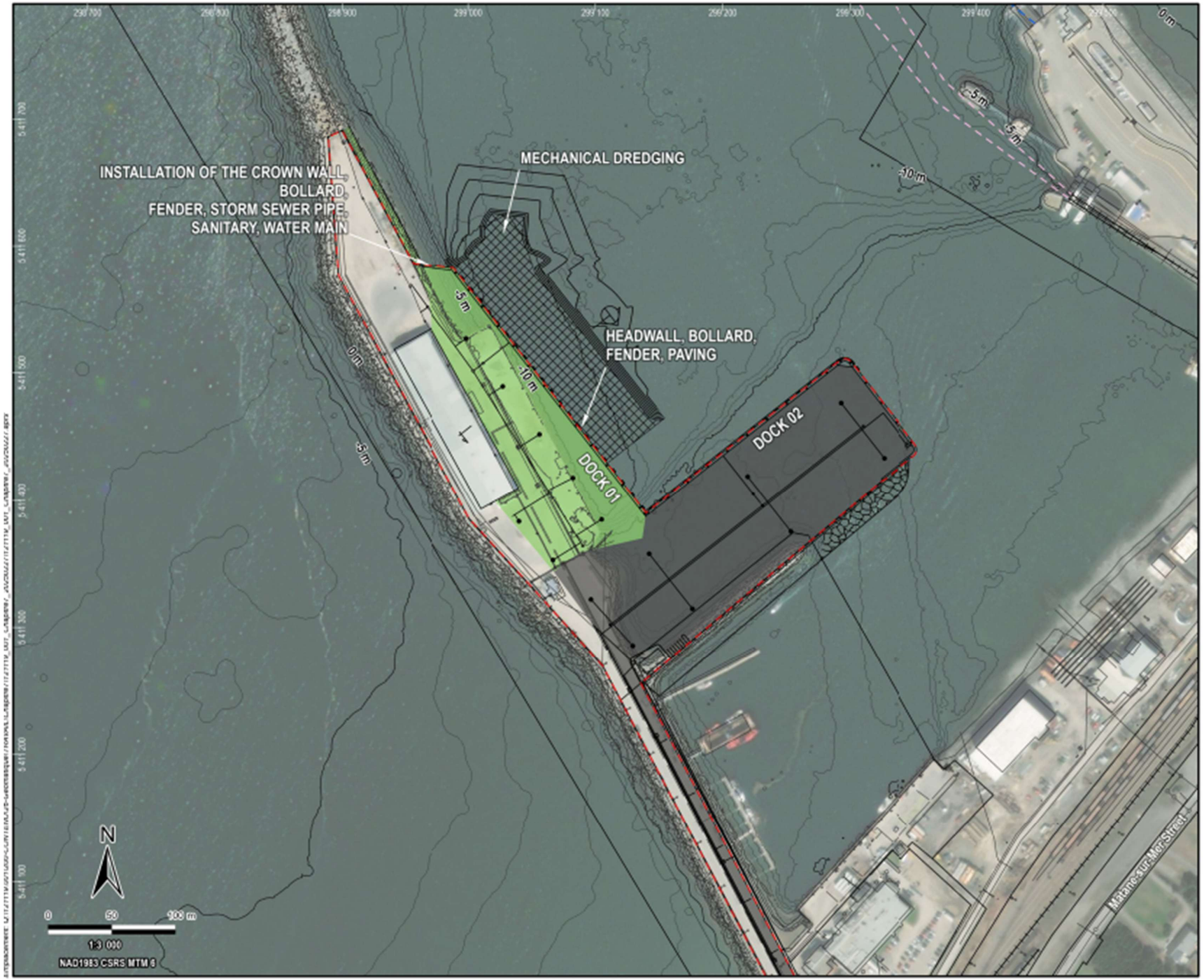
121119-001_C2-5_Phase3_20250505_EN.pagx

Base carto : Manar, 2022

Map 2.5

Prepared : SN Drawing : MPRO Verified : AT

Map 2-5: Representation of Phase 3 (Construction of Berth No. 2 and Installation of Service Systems)



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Société portuaire du Bas-Saint-Laurent
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- Local Study Area
- Expanded Study Area
- Limit of Proposed Option 4
- Mechanical Dredging

Railroad Network

- Railroad Track
- Transfer Vessel

Bathymetry *(Englobe, 2023)*

- Isobaths (1 m)

Redevelopment of Port Infrastructure in Matane

Representation of Phase 4
(Mechanical Dredging, Demolition and Reconstruction of Berth No. 1)

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NOVEMBER, 2025

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Base carto : Maxar, 2022

Map 2.6

Prepared : SN | Drawing : MPRO | Verified : AT

Map 2-6: Representation of the Phase 4 (Mechanical Dredging, Demolition and Reconstruction of Berth No. 1)

PHASE 4 – DEMOLITION AND RECONSTRUCTION OF THE EXISTING COMMERCIAL DOCK

Phase 4 concerns Berth No. 1 and its connection to Berth No. 2. It includes a series of activities such as demolition of the existing commercial dock (removal of the slab on piles, cutting and removal of piles, and removal of an existing riprap layer under the current dock), installation of the sheet-pile wall by vibratory driving and hammering, backfilling with granular material and placement of riprap up to the tie-rod elevation, installation of tie-rods, installation of electrical conduits, stormwater pipes and manholes, water supply network, Ro-Ro ramp at the junction of Berths 1 and 2, mooring bollards and fenders, driving surface and lighting poles (Map 2-6).

PHASE 5 – DEVELOPMENT OF HANDLING AND STORAGE AREAS

Phase 5 concerns the existing handling and storage areas around the current building, as well as the port exit road. This phase includes demolition of the existing driving surface, installation of electrical, stormwater, and sanitary conduits and manholes, installation of lighting poles, demolition of the existing harbor master's building, construction of the new driving surface, and elevation of the existing riprap of the west breakwater (Map 2-7).

Finally, it should be noted that during this phase, both new berths will be fully operational at full capacity.

2.4.2.1.2 OTHER ACTIVITIES DURING THE CONSTRUCTION PHASE

Additional activities are required during the construction phase, namely:

- Preparatory work on land, consisting of setting up work areas according to the project implementation stages.
- Transport and traffic, required to deliver various types of materials to the site and to dispose of contaminated dredged sediments at an authorized facility. It should be noted that before work begins, a traffic plan will be developed in collaboration with the City of Matane. In this regard, it is planned that all construction traffic will use Rue du Port to avoid heavy transport traffic on Matane-sur-Mer Street.
- Refueling and maintenance of machinery, which will be carried out directly on the worksite using a tanker truck for less mobile equipment or at a designated location more than 30 m from the shoreline for mobile equipment and machinery.
- Management of runoff water and snow, which will be ensured by surrounding the work area with berms to direct water to a low point. At this location, a mobile system will be installed to allow settling of collected water to reduce suspended solids before discharge into the environment.
- Site restoration, which consists of complete cleanup of the worksite and reorganization of temporary off-site work areas (if required).

2.4.2.2 Operation and Maintenance Phase

TRANSPORT AND TRAFFIC

According to KPMG projections (2024) and current traffic at the existing commercial dock, an increase in the number of vessels at berth is anticipated as early as the first years of operation. On average, 44 vessels currently use the commercial dock annually for the transshipment of 310,600 tonnes. Since an increase of 81,300 t/year is expected by 2028, an additional 24 vessels per year are anticipated in the early years. This number could gradually rise to a maximum of about 40 additional vessels.

This increase in maritime traffic will have an impact on transport and circulation required to deliver transshipped materials either to the Port of Matane or to their destination. Based on a conservative scenario, using trucks with a capacity of 16 tonnes, an additional 14 to 18 trucks would be added to the current traffic. The latter is estimated at between 50 and 74 trucks per day during regular operations.

PORT OPERATIONS

Following the completion of the work, the port is expected to operate the berths in a manner like current practices, namely using the existing warehouse owned by QSL near Berth No. 1 and accessing the port via Rue du Port, which crosses the railway. Naturally, port operations will be on a larger scale since there will be an additional berth compared to the current situation.

Although two vessels can be moored at the same time, the equipment required for operations will remain the same: a wheel loader, an excavator, trucks (10-wheel, 12-wheel, 53-foot, etc.), forklifts, and a fleet of various vehicles (including employees' personal vehicles).

It should be noted that the current forklifts could be replaced by electric forklifts. This possibility is currently being studied by SPBSG and the terminal operator. Furthermore, port electrification could continue with the installation of shore power, which consists of a connection for the vessel allowing it to avoid using its engines while moored. Very little additional work would be required for this addition since the necessary electrical conduits are already planned in the works described above.

ACCESS GATE TO THE COMMERCIAL SECTION OF THE PORT OF MATANE

The access gate is primarily intended to control the entry and exit of trucks on the site, as well as to optimize their transit within the terminal. A single entry and exit lane are planned, equipped with all necessary truck control systems (access control, cameras, etc.). Optimizing the position of the gate compared to the current situation will ensure better traffic flow on commercial berths No. 1 and No. 2.

MANAGEMENT OF RUNOFF WATER AND CONTAMINATED SNOW

The commercial section of the Port of Matane is currently not served by a storm sewer system. Site drainage is directed toward riprap or dock edges. As part of the port infrastructure redevelopment project, a new storm sewer network will be installed with outfalls positioned in the riprap or new dock faces. Upstream of stormwater discharge, hydrodynamic separators for oils and sediments will be installed. Treatment units must be approved by MELCCFP, and removal capacities must comply with quality control flow rates to treat 90% of precipitation events.

Regarding the management of contaminated snow, it will be collected and disposed of at authorized sites.

INSPECTION AND MAINTENANCE OF PORT INFRASTRUCTURE

During the operational phase, inspections of port facility performance will be carried out at a frequency established by SPBSG. These inspections are mainly conducted on foot, by boat, or by diving. If necessary, maintenance work may be performed. In such cases, measures will be taken to plan these activities while minimizing environmental impacts.

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- Local Study Area
- Expanded Study Area
- Limit of Proposed Option 4
- Demolition and Reconstruction of the Port Master's Office, Paving, Curbs, Water main, Sanitary and Stormwater networks, Lamp posts
- Elevation of existing riprap

Railroad Network

- Railroad Track
- Transfer Vessel

Bathymetry *(Englobe, 2023)*

- Isobaths (1 m)

Redevelopment of Port Infrastructure in Matane

Representation of Phase 5 (Development of Handling and Storage Areas and Elevation of the West Breakwater)

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NOVEMBER, 2025

121119-001_C2-7_Phase5_20250505_EN.pagx

Base carto : Maxar, 2022

Map 2.7

Prepared : SN | Drawing : MPRO | Verified : AT

Map 2-7: Representation of Phase 5 (Development of Handling and Storage Areas and Elevation of the West Breakwater)

2.4.3 Project Schedule

A project schedule has been developed (Table 2-2), considering restriction periods and constraints. All work, including dredging, is planned to take place over a five-year period. It should be noted that no activities related to the project closure phase are described, as there are no plans to cease port operations in Matane in the long term.

Table 2-2: Project Schedule

Activity	Year										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Preliminary Engineering and EIA											
Public Consultation											
Provincial EIA Deposit											
Bureau d'audience publique sur l'environnement (BAPE)											
Government of Quebec Decree											
Preparation of Plans and Specifications											
Ministerial Authorization											
Launch of Construction Ternder and Contract Award											
Material Procurement Lead Time											
Construction of New Berth (Berth No. 2)											
Demolition of Commercial Dock No. 1											
Reconstruction of Commercial Dock No. 1											
Completion of Reconstruction of Existing Dock											
Remaining Service Life of Existing Dock											

2.4.4 Project Costs and Federal, Provincial, Territorial, Indigenous, and Municipal Participation

The selected construction option has been estimated at $204.5 million. This includes dredging and disposal of soils and sediments, all necessary construction and demolition work, as well as the addition of extra riprap. It should be noted that no financial support from a federal authority is planned for this project.

3 Information on the Location

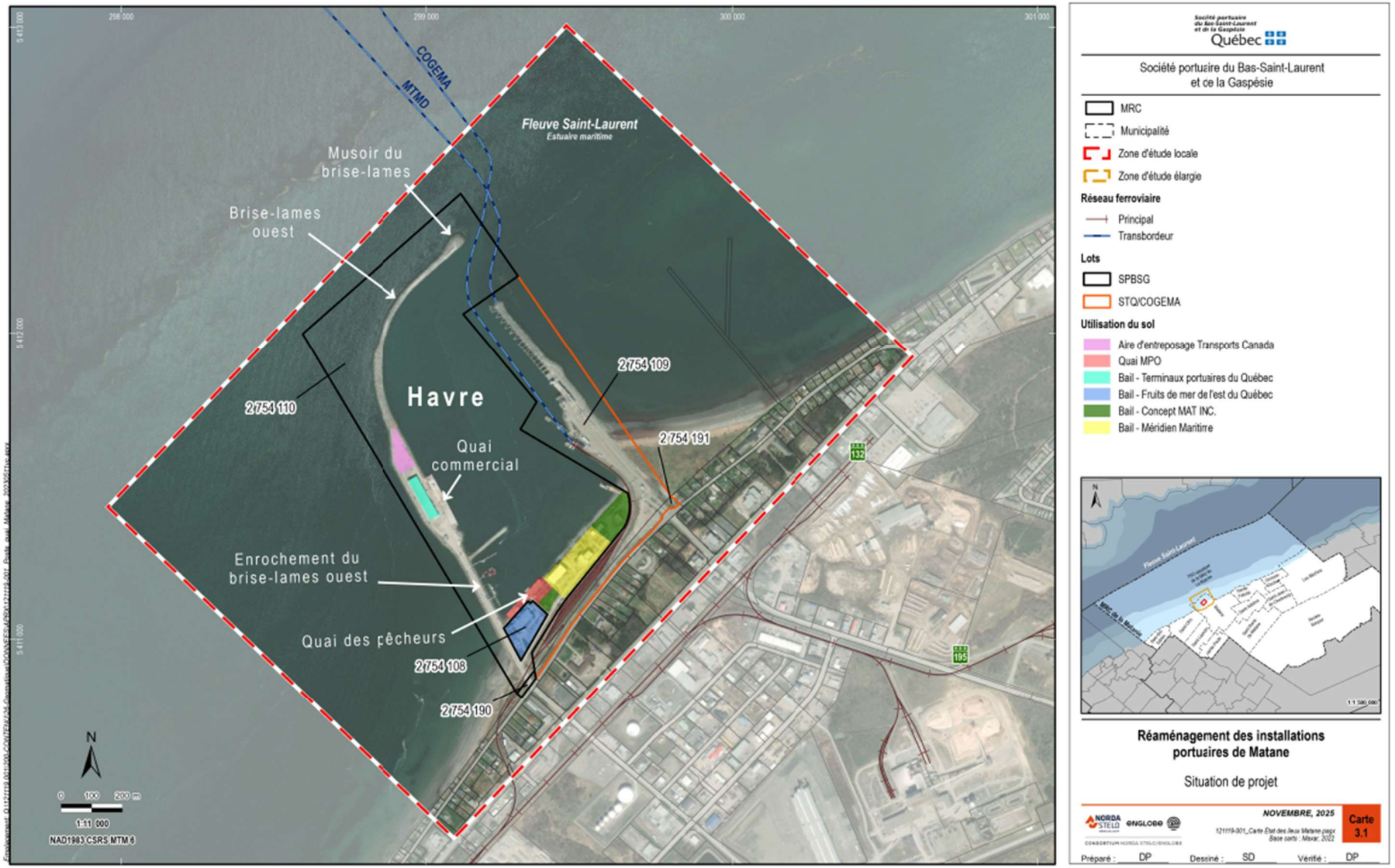
3.1 Project Localisation and Description ont the Site Targeted by the Project

The Port of Matane is located in the maritime estuary of the St. Lawrence, approximately 3.5 km west of the mouth of the Matane River and about 3.0 km from an open-water disposal site under the responsibility of Transport Canada (Map 3-1). On land, the project site is within the territory of the City of Matane, which is part of the La Matanie Regional County Municipality (RCM) in the Bas-Saint-Laurent administrative region. The closest municipalities to the City of Matane (Saint-Ulric and Sainte-Félicité) are located approximately 10 km and 20 km, respectively, on either side of the port infrastructure. Although the Port of Matane is within the industrial-port zone, it is nevertheless close to residences, businesses, hotels, and other infrastructure.

The central geographic coordinates of the port are as follows:

– 48.842600° north latitude and 67.575727° west longitude.

More specifically, the Port of Matane consists of three distinct port sectors: the commercial dock managed by SPBSG, the fishermen's wharf infrastructure under an interdepartmental agreement between Transport Canada and DFO, and the ferry terminal owned by the Société des Transports du Québec (STQ). These port infrastructures are located within a harbor protected on both sides by riprap breakwaters (Map 3-1). Regarding the fishermen's wharf infrastructure, located on federal land, it is important to note that under the transfer agreement, Article 20 and subsequent articles provided for the transfer of its administration by Quebec to the Minister of DFO (Small Craft Harbors). Since this transfer has not yet been registered, it cannot be illustrated.



Map 3-1: Project Location

At the Port of Matane site, various activities are carried out by multiple users who have different infrastructure. The main users are:

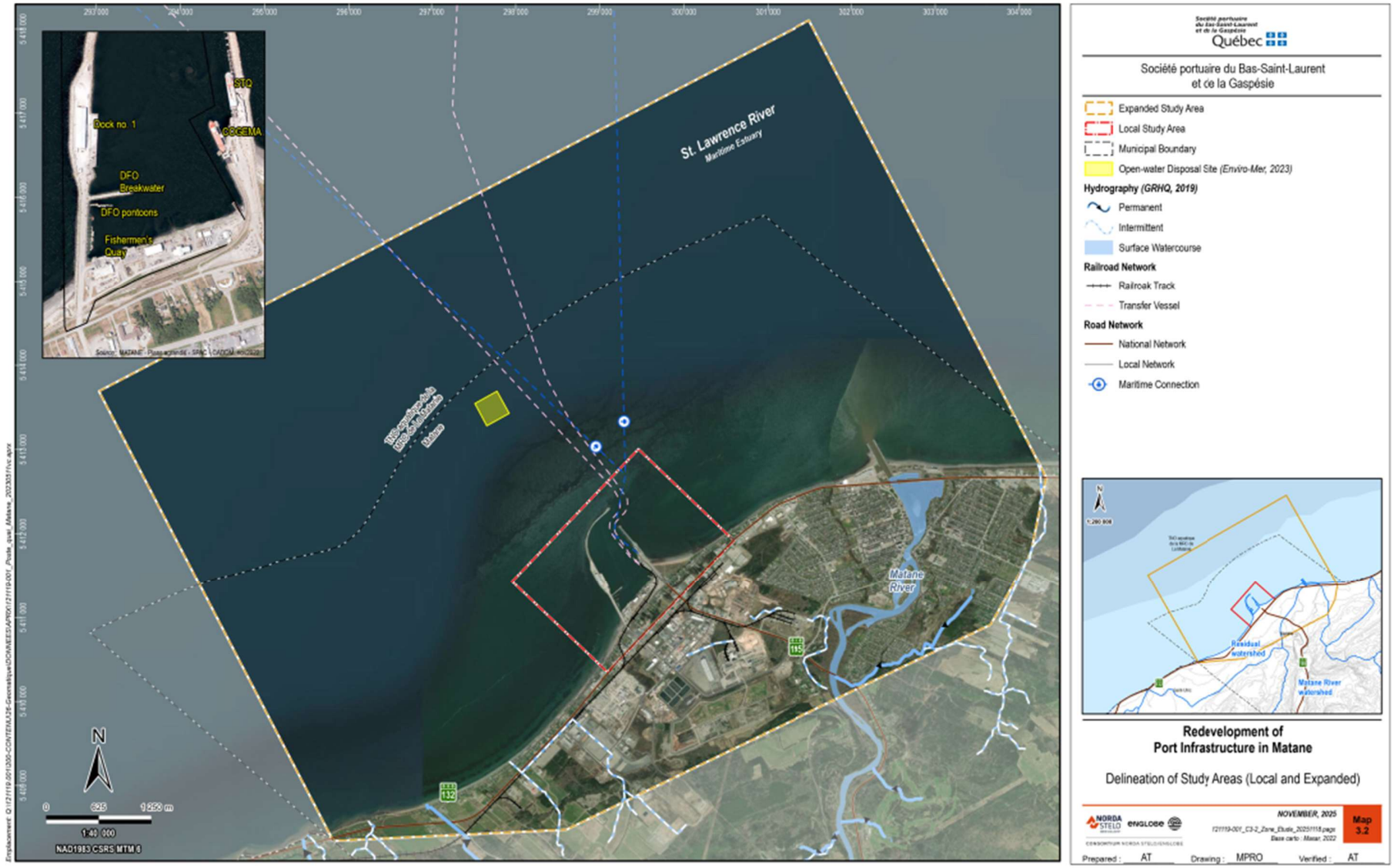
- DFO, which has quay infrastructure dedicated to docking, landing catches, and refueling vessels, as well as a breakwater inside the harbor. Regarding the breakwater inside the harbor, a memorandum of understanding for a property transfer as part of the commercial port infrastructure redevelopment project is currently being developed. The proposed transfer includes the breakwater owned by the Government of Canada (DFO – Small Craft Harbors), as well as part of a shoreline and water lot on which this breakwater is built, namely a portion of Lot 2,754,110 of the Quebec cadastre. Currently, both the breakwater and the shoreline and water lot located between the quay and the breakwater are associated with federal land.
- Arrimage Québec, which is mainly responsible for handling paper pulp as well as salt, steel, cement blocks, and wind turbine components. These activities therefore require indoor and outdoor storage areas. The company also owns the existing warehouse near the commercial dock.
- Fruits de mer de l'Est du Québec, which owns a partially dismantled plant on the port site. This plant suffered a major fire in spring 2024, and the future status of these infrastructure remains to be confirmed.
- Méridien Maritime Canada, which operates a shipbuilding and repair yard whose main activity is the maintenance and repair of vessels, including but not limited to painting, sanding, and chipping.
- Concept Mat, which owns buildings, including one mobile unit, as well as a construction trailer and five containers required for their prefabricated module assembly and finishing activities.
- Irving Canada, an oil company that owns four pipelines, three of which are underground. These pipelines were used to load and unload tankers docking at the port. A valve box is located on the commercial dock, and six tanks with a total capacity of 45,478,276 liters are located about 500 m from the port. It should be noted that MTMD authorizes the retention of equipment on the port site until December 31, 2024. However, it is not planned to approve their extension beyond this date. The disposal of this equipment is currently under discussion with the parties concerned.

3.2 Overview of the Study Area

The description of relevant elements of the natural and human environments present in the study area is based on data obtained from various organizations and ministries, as well as numerous field surveys conducted in 2023 and 2024. This comprehensive data collection has made it possible to complete the profile of existing information necessary to understand the receiving environment and relevant for identifying issues and assessing the project's effects. This concise overview of the different components of the natural and human environments, as well as the landscape, provides a general understanding of the project's integration context.

3.2.1 Study Areas

Two study areas have been defined in the context of the redevelopment of the Matane port infrastructure (Map 3-2). Their land portions are located within the territory of the City of Matane, which is part of the La Matanie Regional County Municipality (RCM) in the Bas-Saint-Laurent administrative region.



Map 3-2: Delineation of Study Areas (Local and Expanded)

With an area of 6,721 ha, the expanded study area provides a clear understanding of the project's context within its environment. It accounts for the main characteristics of the receiving environment, including marine and human components, to establish a general profile. This study area is large enough to include the nearest open-water sediment disposal site. Covering mostly the maritime environment surrounding the Matane port infrastructure, its southern portion includes a strip of land about 2 km long, which encompasses the entire industrial-port zone, nearby residential neighborhoods, as well as the downstream section and mouth of the Matane River.

Smaller in size, the local study area covers 341 ha and is limited to the lands adjacent to the Port of Matane. Bounded to the south by Route 132, it extends about 500 m on either side of the port infrastructure and approximately 1 km offshore. In addition to the port infrastructure operated by SPBSG, the local study area also includes the infrastructure of the Société des traversiers du Québec (STQ), the rail ferry, the fishermen's wharf managed by DFO, and all built-up areas along Matane-sur-Mer Street.

For certain environmental components, a specific inventory zone has been defined. The exact boundaries of these specific inventory zones are detailed in each of the sectoral studies referenced.

3.2.2 Physical Environment

The climate of the study area is cold and humid continental, with significant temperature variations between summer and winter, while precipitation is relatively evenly distributed throughout the year.

Located in the Appalachian geological province (Humber zone subdivision), the coastal strip of the expanded study area is characterized by alluvial deposits composed of sand, sandy silt, gravelly sand, and gravel commonly containing organic matter. The study area is also part of the Appalachian natural province, characterized by a succession of mountains and hills interspersed with valleys and plateaus. The bedrock is sedimentary and sometimes volcanic, covered by fine and deep glacial deposits.

In general, the topography of the study area shows an increasing slope from the shore of the St. Lawrence Estuary toward the inland areas to the south. Elevations near the port infrastructure are about 7 to 10 m above sea level, gradually rising southward to reach 75 m at the summit of Ti-Jaune Mountain, located south of the Port of Matane, and around 50 to 75 m along the west bank of the Matane River.

As for the seabed in the expanded study area, there is a relatively constant slope from the shoreline to the end of the breakwater enclosing the Matane harbor. Beyond this point, the slope becomes steeper, dropping from 20 to 40 m in depth over approximately 360 m, before leveling off. At the open-water disposal site, observed depths reach 55 to 60 m. This site features an elevated area of about 0.6 ha at a depth of -57 m, suggesting that some sediment accumulation still occurs there.

Within the harbor, depths vary because of previous dredging work and ongoing use. The fishermen's wharf area has depths of about 4 to 6 m, while SPBSG infrastructure and navigation areas show depths of about 8 to 10 m.

An assessment of maritime climate, wave conditions, and hydro-sedimentary dynamics was conducted as part of the project (Lasalle | NHC, 2024). In general, the conclusions drawn from this report regarding current conditions are as follows:

– Depending on the return period, extreme water levels range between 4.42 and 4.94 m in the Matane port area.
– For all tidal stages (flood, ebb, and spring tides), tidal current intensity remains very low (or even negligible), with speeds below 0.05 m/s. Only the harbor entrance shows relatively higher tidal currents, though still weak (0.05 to 0.10 m/s).

– Ice formation in the region begins with the appearance of shore ice, which establishes along the coast toward late December. Sea ice floes then form offshore and drift toward the Gaspé coast under the influence of winds and currents in the St. Lawrence Estuary. Wind and current forces cause floes to pile up when they collide with the shore ice, creating ridges.
– The 100-year return period wave height is about 3.2 to 3.5 m at depths of 9 to 10 m (CD) near the Matane harbor, according to the local Mike 21 SW model. Wave height decreases to about 2.2 m at a depth of 2 m (CD).

In the marine environment, the circulation and mixing of water masses in the maritime estuary are complex and influenced by numerous factors such as tides, barometric pressure, air temperature, wind, local freshwater inputs, bathymetry, coastal relief, and the Earth's rotation. In summer, three water masses with different temperatures and salinities are superimposed, while in winter, two distinct water masses are observed (Dunbar *et al.*, 1908 in Centre Saint-Laurent, 1996). In general, St. Lawrence River waters flow along the south side of the estuary, while Atlantic waters enter mainly through the Cabot and Belle Isle Straits.

In summer, the surface water layer results from the mixing of freshwater with underlying saltwater. This water mass is warmer (0 to 14 °C), less saline (25 to 31 PSU), more turbid, and less nutrient-rich than the underlying layers. It extends from the surface down to 50–75 m depending on summer stratification. This water mass flows rapidly (residence time of 10 to 25 days) toward the Gulf of St. Lawrence. The intermediate water layer forms during winter. It is cold (-1 to 2 °C), relatively saline (32 to 33 PSU), clear, and nutrient rich. It flows upstream to the head of the Laurentian Channel. The deep-water layer (>150 m depth) is confined to the Laurentian Channel (temperature 2 to 5 °C; salinity 33 to 35 PSU).

The physicochemical characteristics of the surface water layer undergo the greatest seasonal variations. In winter, when freshwater inputs decrease and atmospheric temperatures cool, the surface and intermediate layers mix so that the surface layer (about 0–75 m deep) becomes icy during winter, while the deep layer (>75 m) remains slightly warmer.

In freshwater environments, the Matane River is the only significant river in the study area. Based on bacteriological and physicochemical quality indices (IQBP) obtained for the Matane River in 2007 and 2008 at 15 stations (MRC de Matane, 2008), water quality ranges from good to satisfactory at 6 of the 15 stations during both sampling periods, generally allowing all uses, including swimming. A total of 6 stations show good to satisfactory water quality during one sampling period and limiting factors during the other. Finally, three stations show doubtful to very poor water quality during both periods. The main limiting factors are phosphorus, turbidity, fecal coliforms, and suspended solids (SS).

According to inventory results and available data, sediment quality in the Matane harbor and at the open-water disposal site is generally good. Most analytical parameters fall below the concentration producing occasional effects (CSEO), which corresponds to the recommended management threshold for dredging work. Thus, most sediments to be dredged fall into Class 1, totaling 195,068 m³. Managing Class 1 sediments in the aquatic environment poses little risk to aquatic life.

However, inventories revealed copper contamination at two locations in the harbor: a concentration of 44 mg/kg in sample MA-24-F-25-0-20 and 58 mg/kg in sample MA-24-F-19->200, both exceeding the CSEO without surpassing the concentration producing probable effects (CEPP).

These sediments are considered Class 2 and correspond to a volume of 7,510 m³, or 4% of the dredged volume. They cannot be managed in the aquatic environment due to the risks they pose to aquatic life.

Finally, a Phase I Environmental Site Assessment was conducted on the commercial and industrial property of the Matane port infrastructure (Consortium Norda Stelo/Englobe, 2024b). This assessment identified environmental risks that could affect the study site. Consequently, a Phase II environmental characterization is recommended to verify soil quality in areas deemed concerning. The main identified risks include above-ground tanks, underground pipelines or other petroleum equipment, various fill materials, and hazardous and residual hazardous materials.

3.2.3 Biological Environment

3.2.3.1 Terrestrial and Freshwater Environments

The expanded study area is located within the bioclimatic domain of the yellow birch fir forest, more specifically in the eastern subdomain of the yellow birch fir forest, in the ecological region of the Middle Appalachians. Several forest stands have been identified in the expanded study area, covering 264 ha. The main forest stand types are yellow birch fir, fir with cedar, black spruce and sphagnum fir, and red spruce fir. In the local study area, forest stands are limited in size (about 7 ha), consisting of yellow birch fir and a white spruce plantation. Finally, no forest stands have been identified on the port site or around SPBSG infrastructure. No exceptional forest ecosystems (EFE) are present in the expanded study area.

As for open habitats in the expanded study area, they occupy 1,113 ha (17% of its total area). These mainly correspond to anthropogenic environments associated with the industrial-port zone, linear infrastructures (e.g., railway and roads), and residential neighborhoods. Agricultural lands rank second in importance, mostly concentrated at the western end of the terrestrial portion of the expanded study area. Wastelands, gravel pits, alder stands, and a power transmission line right-of-way are also present further inland toward the southwestern boundary of the expanded study area. Near the Matane port infrastructure, various types of open habitats have been identified, including backshore herbaceous and shrub communities and herbaceous wastelands.

Of the 18 invasive exotic plant species of concern in the context of the project, only three were confirmed during surveys conducted in the inventory zone in 2023, on both sides of the harbor and along the railway. These are common reed (in the railway ditch), reed canary grass, and false baby's breath.

Wetlands total 93.1 ha (1.4%) of the expanded study area, with swamps covering nearly half of this area (43.9 ha), followed by treed bogs occupying 28.8 ha. At the scale of the local study area, wetlands are limited to 2.8 ha (0.8%). In this zone, only treed bogs (2.0 ha) and one swamp (0.8 ha) were recorded. There are no wetlands on the port site or around SPBSG infrastructure.

In the expanded study area, the main aquatic environment is the maritime estuary of the St. Lawrence, followed by the Matane River, which flows about 3 km downstream from the Matane port infrastructure. Two unnamed streams have been identified in the expanded study area. At the Matane port infrastructure, the coastal environment of the St. Lawrence Estuary dictates the dynamics of the aquatic environment. Natural shores are rare in the expanded study area due to the presence of the port and riprap along a significant portion of the shoreline east of the port. To the west, signs of erosion are visible, and past stabilization interventions are noted in some areas.

According to existing documentation, wildlife species likely to be present based on their geographic range include 6 bat species, 16 small mammal species, and 22 terrestrial and semi-aquatic mammal species. Of these, a smaller number have a medium or high potential for presence depending on the habitat types identified in one or the other study areas (Table 3-1).

Table 3-1: Terrestrial Mammal Species potentially present in the Study Areas

Category	Specie		
Herpetofaune	– American Toad – Wood Frog – Green Frog	– Northern Leopard Frog – Bullfrog – Snapping Turtle	Common Garter Snake
Bats	– Big Brown Bat	– Little Brown Bat	
Micromammals	– Gapper's Red-backed Vole – Cooper's Lemming Vole – Northern Short-tailed Shrew – Masked Shrew	– Brown Rat – House Mouse – Woodland Jumping Mouse – Meadow Jumping Mouse	– Deer Mouse
Large Mammals	– White-tailed Deer	– Moose	
Small and Medium Fauna	– Long-tailed Weasel – Eastern Coyote – Red Squirrel – Ermine	– Snowshoe Hare – Groundhog – Striped Skunk – Muskrat	– Raccoon – Eastern Chipmunk – American Mink

3.2.3.2 Coastal and Aquatic Environments

COASTAL AND AQUATIC VEGETATION

During fieldwork, vegetation was observed along the beaches located west and east of the port infrastructure. On the beach shoreline, the plant communities observed correspond to salt meadows located below the high-water mark. These environments are characterized by the presence of debris and sediments deposited by the sea. Tree and shrub layers are absent. The herbaceous layer is dominated by hastate orache, American beachgrass, curly dock, and blunt-leaved dock.

In 2023, during inventories conducted in the intertidal zone, fucoid algae beds were observed inside the harbor, particularly on anthropogenic structures such as riprap and concrete boat ramps. The main species observed were toothed wrack and bladder wrack. No aquatic vegetation was observed in the intertidal zone west of the Port of Matane. Similarly, in the beach area east of the port infrastructure, no aquatic vegetation was present.

At greater depths, eight species of macrophyte algae were recorded inside the harbor. They are mainly attached to riprap of port structures and to stone blocks scattered on the seabed. SIGEC (2024) reports the presence of macrophyte beds (mainly colonized by long-stipe kelp, succulent alaria, and sea lettuce) in the subtidal zone along the coasts of the expanded study area, located on both sides of the port infrastructure. In addition, there is a small macrophyte bed in the subtidal zone inside the harbor.

ZOOPLANCTON

Zooplankton includes several types of animals that drift passively with the currents (Gagnon, 1996). It consists of organisms that complete their entire life cycle in the pelagic environment, as well as eggs and larvae of benthic organisms and fish. Copepods make up most zooplankton in the marine estuary between May and October (79 to 90%) (Runge and Simard, 1990). About 30 species of copepods are present in the marine estuary, the most abundant being *Calanus finmarchicus* and *C. hyperboreus*, which together account for nearly 50% of zooplanktonic organisms.

The euphausiids *Meganyctiphanes norvegica*, *Thysanoessa raschii*, and *T. inermis* form another important group in the marine estuary (Mousseau and Armellin, 1996). These three species form aggregations that can extend over distances of up to 100 km and create a band 1 to 7 km wide along the Laurentian Channel (Mousseau and Armellin, 1996). In areas where these euphausiids occur, they represent up to 90% of zooplankton biomass (Simard et al., 1986a, 1986b in Mousseau and Armellin, 1996). Among other locations, there is a concentration zone of euphausiids east of the expanded

study area between Matane and Les Méchins. This sector serves as a feeding ground for the blue whale and is designated by MELCCFP as a land reserve for the purpose of creating a protected area.

The marine estuary also acts as a retention site for larvae of invertebrates and commercially important fish species (AECOM Tecsult inc., 2010). In spring, the dominant species is the American sand lance, representing 85% of all larvae. Later, in summer, larvae of capelin, Atlantic herring, redfish, Atlantic cod, and fourbeard rockling are the most abundant.

BENTHIC INVERTEBRATES

Characterization of the intertidal zone revealed that the sandy shores within the study area host very few benthic organisms. The common crab proved to be relatively abundant, particularly on the western side of the port infrastructure. A few amphipods were also observed at low tide in the pool located at the base of the beach west of the port. Barnacles were observed on the port's riprap as well as on the rocky substrate at the lower beach in the area adjacent to the Matane River.

On the muddy bottoms of the infralittoral zone inside the harbor, epibenthic communities—those present on the surface of the substrate—are mainly influenced by the nature of the substrate. On muddy bottoms, the common crab is among the most abundant and widespread species in the harbor, accompanied by sand shrimp, mysids, and lobster. Along the breakwater perpendicular to the wharf, the dominant species differ and include blue mussel, tortoiseshell limpet, mysids, and barnacles. The endobenthic invertebrate community shows a predominance of bivalves, followed by polychaetes.

At the open-water disposal site, the main species colonizing the surface of the muddy bottoms are common to the St. Lawrence marine estuary and include snow crab, green sea urchin, and sea raspberry. The endobenthic community is primarily composed of bivalves and polychaetes, with a smaller proportion of cumaceans.

FISH AND ITS HABITAT

In the St. Lawrence marine estuary, there are believed to be more than a hundred fish species, primarily typical marine and estuarine species (Scallon-Chouinard et al., 2007; Roche, 1987; SNC-Lavalin, 1996; Hydro-Québec, 1992; AECOM Tecsult inc., 2010; Mousseau and Armellin, 1996).

Fish communities in the marine estuary are characterized by a predominance of demersal fish compared to pelagic fish. It should be noted that several pelagic species, such as Atlantic herring and Atlantic mackerel, are present in the marine estuary only part of the year. As for demersal fish, some species such as Atlantic cod and Greenland halibut migrate between the marine estuary and the Gulf of St. Lawrence. Thus, during winter, they are absent or scarce in the estuarine portion of the St. Lawrence.

Among the most abundant species in the intertidal zone are capelin, Atlantic herring, Atlantic tomcod, and sticklebacks (Mousseau and Armellin, 1996). Their abundance fluctuates seasonally. In the Laurentian Channel, Greenland halibut, Atlantic cod, American plaice, yellowtail flounder, and redfish are predominant. Arctic-affinity species occur in small numbers in the deep waters of the Laurentian Channel. As for diadromous species, adults are abundant particularly during migration to their spawning grounds.

The Matane River is a salmon river, and its mouth is located just over 3 km downstream from the SPBSG port infrastructure.

AVIFAUNA

It is possible to observe certain bird species year-round at the Port of Matane, although their abundance may fluctuate seasonally. This is notably the case for the Mallard, Common Eider, Rock Pigeon, Black Guillemot, Black-legged Kittiwake, Herring Gull, Great Black-backed Gull, American Crow, and European Starling.

Bird species most frequently observed during spring or fall migration include those that nest in the boreal forest or tundra and winter in the south, such as Canada Goose, scoters, Semipalmated Plover, Ruddy Turnstone, Sanderling, Dunlin, Least Sandpiper, Semipalmated Sandpiper, Bonaparte's Gull, Red-throated Loon, and American Pipit.

Migration of several shorebird species and Bonaparte's Gull toward the south or the Atlantic coast can begin as early as mid-July for non-breeding individuals or those whose nesting has failed.

Species observed during the breeding season include Killdeer, Spotted Sandpiper, Razorbill, Ring-billed Gull, Common Loon, Northern Gannet, Double-crested Cormorant, Red-eyed Vireo, swallows, American Robin, American Goldfinch, Red-winged Blackbird, Common Grackle, as well as most species of warblers and sparrows. They arrive in the study area in spring and leave in autumn.

Some species are observed both during migration and wintering periods. These are mostly species nesting in the north, whose migratory and wintering ranges overlap, such as American Black Duck, Greater Scaup, Lesser Scaup, Long-tailed Duck, Iceland Gull, Glaucous Gull, and Snow Bunting.

Species present during migration and wintering also include those found year-round at the project latitude but that do not nest in marine environments, such as goldeneyes and Red-breasted Merganser.

MARINE MAMMALS

Six species of mysticetes, eight species of odontocetes, and four species of pinnipeds are likely to be observed in the expanded study area. Among the mysticetes, Blue Whale, Fin Whale, Minke Whale, and Humpback Whale are the most likely to be seen. They are more abundant during summer and frequent the St. Lawrence Estuary to feed. Among the odontocetes, the Beluga is the only species that resides year-round in the St. Lawrence Estuary, and the study area is within its winter range.

As for pinnipeds, the expanded study area is within a concentration zone for Harbor Seal. Harbor and Gray Seals are the most likely to be observed in the study area, mainly for feeding. There are no known haul-out sites in the expanded study area.

FLORISTIC AND FAUNAL AT-RISK SPECIES

According to the presence potential analysis, 39 species are likely to occur within the expanded study area. However, none were identified in the inventory zone during surveys conducted in September 2023. No habitat of threatened or vulnerable plant species is mapped by MELCCFP within the extended or local study areas. It should be noted, however, that Ostrich Fern (*Matteuccia struthiopteris*) has been recorded in the local study area (Bureau d'écologie appliquée [BEA], 2018). This species is designated as vulnerable to harvesting in Québec.

Based on the 2024 assessment of the potential presence of species with special status, 3 arthropod species, 11 mammal species, 17 bird species, 6 fish species, and 2 herpetofauna species have a non-negligible potential to occur in the expanded study area. The following six species have a high potential to be present at some point during the year in the extended or local study area: Common Nighthawk, Peregrine Falcon, Barrow's Goldeneye, Harbor Porpoise, Little Brown Bat, Blue Whale, and Fin Whale.

The presence of five faunal species with precarious status has been confirmed in the expanded study area: Common Nighthawk, Chimney Swift, Least Bittern, Bald Eagle, and Beluga (St. Lawrence Estuary population).

3.2.3.3 Protected Areas and Habitats of Interest

Part of the expanded study area lies within the boundaries of the Matane-Les Méchins land reserve for the purpose of creating a protected area. Covering an area of 316 km², this territory aims to protect an important feeding zone for the Blue Whale, as it contains high concentrations of krill.

Also noteworthy is the Matane River, whose mouth is located at the eastern end of the expanded study area. It is classified as a salmon river and is of particular interest for the conservation of this species.

The south shore of the St. Lawrence Estuary and Gulf is lined with numerous Waterfowl Concentration Areas (WCA), which constitute wildlife habitats defined by the Regulation respecting wildlife habitats and protected under the *Loi sur la conservation et la mise en valeur de la faune* (LCMVF). The local study area, however, is not located within a WCA. The Saint-Ulric Est WCA is approximately 3.5 km west of the Port of Matane, while the Matane WCA is about 1.2 km east of the port. The port area could eventually be designated as a WCA, considering the results of the latest inventories conducted in fall 2008 and spring 2009 by MRNF.

It should be noted that the Port of Matane is located at the edge of a key habitat for sea ducks, namely the Cap Marteau-Matane site. This site extends for 140 km along the south shore of the St. Lawrence Estuary and hosts a continentally significant number of nesting Common Eiders, Barrow's Goldeneye during spring and fall gatherings, and scoters during molting periods or seasonal aggregations.

3.2.4 Human Environment

SOCIOECONOMIC PROFILE

According to the 2021 Census (Statistics Canada, 2023), the population of the City of Matane was 13,985, a decrease of 2.3% compared to the 2016 population of 14,315. This represents more than two-thirds (67.2%) of the population of the La Matanie RCM, which had 20,885 residents in 2021 (ISQ, 2024). The 15-64 age group accounts for the largest share of Matane's population (57.8%), which is lower than the provincial level (63%) but similar to that of the RCM (57.1%). The male-to-female ratio is fairly similar across all age groups. Regarding demographic projections for 2020-2041 based on ISQ assumptions, the City of Matane is expected to experience a significant population decline of 8.5%.

In 2020, the median total household income (before tax, rounded data) in Matane was $56,000. This is similar to that recorded for the La Matanie RCM ($56,400) but significantly lower than the provincial median ($72,500). The activity rate was 54.6%, relatively similar to that of the RCM, but nearly 10% lower than the provincial rate. The employment rate in Matane (50.4%) was slightly higher than that of the RCM (48.7%) but still below the provincial level (59.3%).

The distribution of jobs by sector (primary, secondary, and tertiary) in Matane is relatively similar to that of the RCM. Nevertheless, the tertiary sector generates the largest number of jobs both in Matane and in the La Matanie RCM, as is the case across the province.

According to health indicators from the *Centre intégré de santé et de services sociaux du Bas-Saint-Laurent* (CISSSBSL), life expectancy at birth for the 2016-2020 period is fairly similar across administrative entities, with a difference of less than two years compared to the province and less than one year compared to the Bas-Saint-Laurent region. Overall quality of life and health status in the La Matanie RCM appear slightly lower than those observed in the Bas-Saint-Laurent region and the province of Québec. According to results published by CISSSBSL in 2023, mental health in the La Matanie RCM appears more concerning than in the Bas-Saint-Laurent region and the province. The prevalence of mental disorders among individuals aged 1 and over, anxiety-depressive disorders among those aged 15 and over, and attention deficit disorder with or without hyperactivity (ADHD) among those aged 1 to 24 is higher. The hospitalization rate for suicide attempts is particularly concerning.

Health determinants help contextualize certain realities related to population health indicators. In total, 14 indicators were presented to provide a profile of the RCM compared to the Bas-Saint-Laurent region and Québec (Consortium Norda Stelo/Englobe, 2024c). Compared to the Québec population, most indicators are higher for Matane's population, except for the activity rate, which is slightly lower, and disturbance from ambient noise. CISSSBSL data show that the proportion of the population whose sleep was disturbed by ambient noise (aged 15 and over) is 15%, much lower than the provincial average (19.5%) but similar to that of the Bas-Saint-Laurent region (16.2%). This information may indicate that the La Matanie RCM population experiences a lower-intensity sound environment than the average for Québec regions.

LAND USE

INFRASTRUCTURE

The port infrastructure is located specifically within the city's urbanization perimeter and the industrial-port zone (IPZ). The Port of Matane infrastructure include the west breakwater, the commercial wharf, the inner breakwater, the fishermen's wharf, and the land portion of the port. Open year-round, the Port of Matane also hosts a ferry service operated by STQ, providing a maritime link between the cities of Matane, Baie-Comeau, and Godbout. The port also includes a passenger terminal and a rail ferry (STQ – COGEMA) offering freight transport service between Matane and the Côte-Nord/Labrador region. Various businesses are also established on SPBSG-owned land, either on the commercial wharf or south of the harbor basin.

Between the Port of Matane and the Matane Industrial Park—between the estuary and Route 132 (Avenue du Phare Ouest)—a mix of land uses is observed. On this narrow strip of land, which is part of the local study area, residential and commercial uses follow one another without any real spatial organization. In this part of the local study area, more than fifty residences are located on both sides of Rue de Matane-sur-Mer, over a distance ranging from 750 m west of the port infrastructure to about 1.5 km east of them. It is worth noting the presence, at a short distance from the current port infrastructure, of lodging establishments such as Motel Le Portage, Hôtel-Motel La Vigie, Quality Inn, and Hôtel-Motel Belle Plage.

The Regional Industrial Park (RIP) is the second component of Matane's IPZ. This industrial park is conducive to business establishment, offering a diversified range of development-ready lots served by municipal water and sewer networks, access to the rail network, and close proximity to the Port of Matane.

COMMERCIAL FISHERIES

Off Matane, the St. Lawrence Estuary is subdivided into several commercial fishing zones, each defined by the target species. These zones include Snow Crab (Zone 17), Common Crab (Subzone 17B), Shrimp (Zone 12), Lobster (Subzone 19A), Greenland Halibut (Zone 4T4), Whelk (Zone 12), and Green Sea Urchin (Zone 7C). Species typically fished in the St. Lawrence Estuary and landed at Matane are subject to quotas and strict regulations to ensure resource sustainability in this water body. Landed species and quantities may vary annually due to these regulations, and fishers must hold permits issued by DFO. Fishers registered at the Matane fishing port have expressed several concerns, particularly regarding the open-water disposal site, due to the potential presence nearby of crab, lobster, and whelk.

Representatives of the Wolastoqiyik Wahsipekuk First Nation (PNWW) confirmed that the company Les Pêcheries Malécites has been conducting experimental lobster fishing near the Port of Matane for several years. Results obtained so far suggest that this experimental fishery could soon become permanent.

RECREATIONAL AND TOURISM ACTIVITIES

Few recreational tourism activities are recorded in the local study area. In fact, aside from informal activities (wildlife observation, beach walking, driftwood collecting, etc.), the main activity remains cycling, as the *Route verte*—the largest cycling network in North America—crosses the Matane area, following Rue de Matane-sur-Mer along the port infrastructure.

To the east and north of the expanded study area are sites associated with recreational tourism activities, including:

- The Matane marina, located on the east bank of the river of the same name, near its mouth.
- The parking lot directly east of STQ infrastructure, providing access to the beach for informal activities.
- The Matane River, a recognized salmon river, where recreational fishing is practiced.
- The fish ladder at the Mathieu-D'Amours dam in downtown Matane, one of the main tourist attractions in La Matanie.
- Parc des Îles, designed to offer users a variety of activities and services, including beach, trails, picnic areas, playground, water games, outdoor gym, walking paths, inline skating track, and more.

INFRASTRUCTURE AND SERVICES

The Port of Matane is one of the main maritime infrastructures in the La Matanie RCM and is the most important port in eastern Québec. The port primarily handles wood pulp, de-icing salt, and general cargo. Sand and wood pulp have seen significant growth in recent years. Annually, nearly 300,000 tonnes of goods are transshipped through the Port of Matane, most of which are destined for export. In addition to commercial traffic, Matane also has a road ferry operated by STQ, linking Matane to Baie-Comeau and Godbout on the Côte-Nord. There is also a rail ferry operated by *Compagnie de gestion de Matane* (COGEMA), providing the only connection between the Côte-Nord—and even Newfoundland and Labrador—and the North American rail network. Finally, there is the fishermen's wharf, managed by Fisheries and Oceans Canada.

The local and regional road network is structured around Route 132, the main land route connecting Gaspésie to the rest of Québec via Bas-Saint-Laurent. Within the urban area, access to the Port of Matane from Route 132 is preferably via Rue du Port, which provides direct access to port infrastructure.

The Matapédia and Gulf Railway serves the Matane industrial zone and the COGEMA rail ferry. These railways are owned and operated by CN. According to CN, the weight limit for this rail route is 286,000 pounds, representing the highest category for this carrier. CN also owns a distribution center in Matane that offers services for oversized loads, including metals and minerals, forest products, and bulk/CargoFlo. It should be noted that the railway serving COGEMA infrastructure runs along the southern edge of the port.

Most electric power transmission line corridors cross the RCM territory along an east-west axis. No high-voltage power lines are located near the Port of Matane. The closest high-voltage lines are in the industrial park, with voltages of 230 kV and 69 kV, including a substation with a capacity of 90 MVA. Only the local distribution network (25 kV) supplies electricity to the port and industrial infrastructures within the local study area.

The IPZ is currently served by the municipal sewer and water systems of the City of Matane. The city's drinking water treatment plant is located outside urban areas near the Michaud Bridge along the Matane River, accessible via Route du Grand-Détour. Water production comes from artesian wells with tubular supply systems.

In the La Matanie RCM, the main telecommunications infrastructure include telephone exchanges, broadcast antennas, and microwave towers. No major telecommunications infrastructure is located near the Port of Matane. However, some communication installations are present on Hydro-Québec transmission poles along Rue Matane-sur-Mer and Avenue du Phare Ouest (Route 132).

PRESENCE AND CURRENT USE OF THE TERRITORY BY FIRST NATIONS

WOLASTOQIYIK WAHSIPEKUK FIRST NATION

In Québec, the Wolastoqiyik Wahsipekuk First Nation (PNWW) has two reserves located in the Bas-Saint-Laurent region. The first is the Cacouna Reserve, and the second, Whitworth, is located about 35 km southeast of Cacouna. These two reserves are approximately 200 km from the Port of Matane. Members of the Nation live mainly dispersed across Québec and the United States, primarily in the state of Maine. As of March 2024, PNWW had a total registered population of 2,011 members.

In Québec, the ancestral territory of the Wolastoqiyik, Wolastokuk, extends south within the watershed limits of the Etchemin River, along the borders of Maine and New Brunswick, up to the banks of the Mitis River to the north. This territory includes the north shore of the St. Lawrence River as well as part of the Saguenay River banks.

Although the traditional territory of PNWW is not located directly within the expanded study area, the Wolastoqiyik visit the sector to carry out fishing-related activities.

MI'GMAQ FIRST NATION

In Québec, the Mi’gmaq First Nation is located in Gaspésie. It includes the Gesgapegiag Reserve, the Gespeg community (which does not have a reserve), and the Listuguj Reserve, located approximately 230 km, 300 km, and 170 km from the Port of Matane, respectively. The Gesgapegiag and Listuguj communities have two distinct reserves on the coast of Chaleur Bay, while most members of the Gespeg community live in the Gaspé Bay area. As of March 2024, the Mi’gmaq First Nation of Mi’gmawei Mawio’mi (PNMM) had a total registered population of 7,901 members distributed among the three Gaspésie communities.

PNMM has identified a traditional territory, Gespe’gewa’gi, which is divided into two parts: the primary and secondary areas. This is the territory asserted in the Québec land claim filed by the Mi’gmawei Mawio’mi Secretariat in 2007. The primary area covers approximately 190,800 km², encompassing the entire Gespe’gewa’gi territory. It extends across the Gaspé Peninsula to near Rimouski and includes northern New Brunswick, Anticosti Island, and the Magdalen Islands. The secondary area covers nearly 21,000 km², from the edge of the primary area to Lévis and Saint-Georges-de-Beauce, including an extension into northern Maine, USA, toward Edmundston.

The expanded study area is therefore included within the boundaries of Gespe’gewa’gi. PNMM uses the expanded study area, among other purposes, for fishing-related activities.

HERITAGE AND ARCHAEOLOGY

According to the Québec Cultural Heritage Directory, two cultural properties protected under the *Cultural Heritage Act* are listed within the expanded study area: the Matane Lighthouse and the Saint-Jérôme-de-Matane presbytery. Neither of these properties is located within the local study area.

Based on the Québec Archaeological Sites Inventory (ISAQ) maintained by the Ministry of Culture and Communications and the land-use plan of the La Matanie RCM, no archaeological sites are known within the local study area. The only zones with archaeological potential identified in studies conducted for other projects are all located along the Matane River, which is explained by the history of Matane’s village development.

The earliest descriptions of the Matane River come from the writings of Samuel de Champlain. In 1612, he noted dwellings at the river’s mouth, likely established by merchants from La Rochelle who frequented its fishing harbor. Coveted for its river resources, the Matane seigneury was owned by several successive lords until the mid-1800s.

The first religious nucleus, called Saint-Jérôme-de-Matane, was established on the west side of the Matane River, and by 1851, the parish population reached 229 inhabitants, including 193 in Petit-Matane and only 36 on the river’s west bank. The parish then developed gradually toward the river mouth over the following decades. During the same period, two other parishes were added in the 20th century: Saint-Victor (Petit-Matane) and Saint-Rédempteur.

In 1850, the new royal road traced between the Mitis and Matane seigneuries helped open up the region and further encouraged settlement. At that time, forestry was the main economic driver. The history of Matane's village and urban development explains why the oldest buildings are located near the seigneurial domain, the religious nucleus, and around the river mouth. According to the built heritage inventory conducted by the City of Matane in 2006, only 65 buildings (15%) have heritage value worth noting. Mainly located in Matane (Avenue Saint-Jérôme) and Petit-Matane, these buildings are all outside the local study area.

Several heritage sites outside the local study area have also been identified by the City of Matane within the expanded study area, including:

– *Promenade des Capitaines*, a walking trail showcasing the city's maritime tradition.

– The Mathieu-D'Amours dam and the adjacent Salmon Migration Observation Center.

As for zones with Indigenous archaeological potential, for both prehistoric and historic periods, they are generally associated with major waterways, clearings between mountain passes, and routes between water bodies. This explains why potential is concentrated along the Matane River, particularly its mouth. Zones with potential for Euro-Québécois historic occupation are linked to domestic settlement, agricultural activity, and forestry operations. They are mainly located along colonization roads–whether still present or not–and transportation routes developed from the second half of the 19th century onward.

Finally, regarding underwater archaeological potential, the Matane harbor offers little or no potential. This limited potential is explained by its distance from the river mouth and by dredging activities carried out several times in the past. From a geomorphological perspective, the presence of consolidated sediments dating from the glacial period significantly reduces the likelihood of discovering remains by chance.

Consequently, the local study area offers little or no heritage or archaeological interest, whether terrestrial or aquatic.

LANDSCAPE

The expanded study area is entirely within the Rimouski regional landscape unit. This unit corresponds to the coastal strip of the St. Lawrence Estuary between the cities of Kamouraska and Matane. At the scale of the La Matanie RCM, the landscape framework is defined by five geographic components: the river and its shoreline, the plain and its terraces, the piedmont, the highlands, and the forest plateau. Like the regional landscape unit, the St. Lawrence Estuary and its shoreline characterize the landscape of the La Matanie RCM.

The landscape and visual openings offered by the St. Lawrence Estuary and its shores are highly valued by residents as well as stationary and mobile observers. The estuary contributes to the quality of life of users, whether for recreational and tourism activities or simply for relaxation and scenic contemplation. Within the expanded study area, the Matane River also plays a significant role in shaping the local landscape.

Although different atmospheres can be found in the expanded study area, the St. Lawrence Estuary and the Port of Matane occupy a central and structuring position in the landscape of the local study area. These features contribute to the expression of the local landscape, influenced by proximity to the St. Lawrence and its organization, which is essentially industrial due to the presence of the Port of Matane. Beyond the estuary and the port, landscape elements are also expressed along Rue de Matane-sur-Mer, where residences are distributed.

There are three types of observers sensitive to the landscape in the local study area: residents living along Rue de Matane-sur-Mer; guests at tourist accommodations located on the shore or near the Port of Matane, offering visual and physical access to the sea; and users of Route 132 or Rue de Matane-sur-Mer. For all these observers, the main visual attraction is the view of the sea, as well as the presence of the Port of Matane, which is a distinctive feature of the landscape in both the extended and local study areas.

In addition to these observers are users and workers of the ferry operated by STQ. For these mobile observers, the coastal landscape and the Matane harbor constitute the main views offered from the ferry approaching Matane.

4 Potential Project Effects

4.1 Summary of the Project's Environmental Effects

Most temporary effects related to construction activities will be addressed through standard, proven mitigation measures commonly applied in similar projects. In addition, SPBSG has developed a series of specific mitigation measures to minimize the project's impact on valued environmental components (VECs) associated with the three key issues identified for this project:

- Protection of coastal and marine habitats and their biodiversity,
- Maintenance of living conditions, and
- Reconciliation of land uses.

Despite the planned mitigation measures, the project will have permanent residual effects on the aquatic environment, mainly due to the addition of a second berth and the raising of the west breakwater.

These effects are attributable to certain project activities likely to cause changes to VECs (i.e., sources of impact). The list of waste types and emissions associated with each of the two phases of the Matane port infrastructure redevelopment project is as follows:

- Construction phase:
  - Waste types: used oils and greases, paper, cardboard, plastic, as well as construction and demolition debris (wood, sheet piles, fill, etc.).
  - Air: dust ($PM_{2.5}$) and exhaust gases releasing contaminants into the atmosphere, mainly carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2).
  - Surface water: suspended solids (SS) and hydrocarbons.
  - Soils: dredged contaminated sediments to be managed on land.

– Operation phase:
  – Waste types: residues from materials transshipped at the wharf (e.g., silica, wood pulp).
  – Air: dust ($PM_{2.5}$) and exhaust gases releasing contaminants into the atmosphere, mainly carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2).
  – Water: suspended solids (SS) and hydrocarbons.
  – Soils: no surplus soil generated in the context of port activities.

For each identified issue, the main findings from the impact assessment are summarized in the following sections. Based on these findings, SPBSG has been able to propose a project that limits effects on natural and human environments during the redevelopment of Matane's port infrastructure, while achieving its objectives for the sustainability of its operations. By carrying out this project, SPBSG will be able to continue its activities and maintain its strategic role in local and regional commercial and economic development. Tables 4-1 to 4-3 summarize the project's residual effects and the planned mitigation measures for VECs associated with the identified issues.

It should be noted that residual effects on the presence or current use of lands by First Nations are integrated into the issue of land-use reconciliation to provide a comprehensive assessment of impacts related to this concern. The absence of effects on natural and cultural heritage, as well as on items of historical, archaeological, and paleontological significance, has also been specified. Specific mitigation measures are associated with these aspects.

PROTECTION OF COASTAL AND MARINE HABITATS AND THEIR BIODIVERSITY

Following the assessment of effects on about ten VECs associated with the issue of protecting coastal and marine habitats and their biodiversity, the following findings emerge:

– Compliance with restriction periods applicable to different wildlife groups during construction will prevent impacts on several sensitive periods, particularly for birds, fish, and marine mammals.
– The work will take place in an environment already disturbed by numerous anthropogenic activities for many years. Consequently, species richness and habitat diversity are lower than those observed outside the harbor. For some wildlife groups, such as seabirds, coexistence with port activities appears to occur without significantly disturbing their behaviors, including reproduction.
– The use of mechanical dredging for consolidated sediments, combined with monitoring of suspended solids (SS) concentrations in accordance with MDDELCC and ECCC (2016) management guidelines during the work, will have notable effects in limiting habitat quality alteration for fish and benthic communities.
– Project design has positioned port infrastructure to minimize dredged sediment volumes, thereby reducing dredging duration and potential behavioral disturbances for low-frequency cetaceans, including the Blue Whale.
– No impact is anticipated on salmon migration in the Matane River during the marine disposal of dredged sediments.
– Implementation of mitigation measures to reduce noise intensity at the source during pile driving and sheet-pile vibro-driving will effectively limit underwater noise effects on marine mammals, particularly Beluga and Blue Whale, two more sensitive species. A marine mammal monitoring program, especially during dredging, will also ensure that no individuals are present in the work zone.

Table 4-1: Issue: Protection of Coastal and Marine Habitats and their Biodiversity

Issue: Protection of Coastal and Marine Habitats and their Biodiversity			
VEC	**Source of Effects**	**Effects**	**Mitigation Measures**
Water Quality	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Contaminated sediment management	Risk of contamination from construction activities (debris, residual materials)[1]	– Define construction and work areas – Deploy a containment curtain for suspended solids – Avoid releasing debris into the aquatic environment and remove them if necessary – Collect construction site runoff water – Limit the lowering and lifting speed of the bucket – Fill the bucket to minimize water content – Avoid dragging the bucket along the seabed – Control barge loading to prevent sediment overflow – Suspend work in case of adverse weather conditions – Ensure required materials are clean and free of contaminants – Inspect and ensure regular maintenance and cleaning of machinery in designated areas – Use biodegradable oils for machinery – Store and handle petroleum products in designated areas – Emergency response plan in case of a spill
		Risk of contamination from accidental spills[1]	
		Increase in turbidity (suspended solids) due to construction, dredging, and open-water disposal of sediments[1]	
		Risk of resuspension of contaminants[1]	
Sediment Quality	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Operation: Presence of port infrastructure	Loss of area due to encroachment by new infrastructure	– Characterize sediments prior to dredging campaigns – Avoid releasing debris into the aquatic environment and remove them if necessary – Comply with predetermined depth specifications – Inspect and ensure regular maintenance of machinery – Use biodegradable oils for machinery – Store and handle petroleum products in designated areas – Emergency response plan in case of a spill
		Risk of contamination from construction activities (debris, residual materials)[1]	
		Alteration of sediment characteristics at dredging and open-water disposal site[1]	
		Risk of contamination from accidental spills[1]	
Noise	Construction: Construction site area Transport and traffic Construction work Operation: Transport and traffic Operation and maintenance of port infrastructure	Increase in noise levels at construction and dredging sites	– Comply with current municipal noise regulations – Equip machinery and trucks with appropriate devices to minimize noise – Keep machinery and equipment in good working condition – Use an acoustic enclosure for pile driving – Restrict pile driving to daytime hours – Ensure compliance with the traffic management plan – Limit truck speed – Inform residents about periods and duration of excessive noise
		Increase in noise levels due to new port activities	
Underwater Noise	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Operation: Operation and maintenance of port infrastructure	Increase in underwater noise at construction, dredging, and open-water disposal site	– Ensure compliance with wildlife-related work restriction periods – Keep machinery and equipment in good working condition – Start pile-driving operations gradually and continuously to create a deterrent effect – Use an acoustic enclosure for pile driving – Restrict pile driving to daytime hours See also the mitigation measures related to marine mammals
		Increase in underwater noise due to new port activities	
Hydrosedimentary Regime	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Operation: Presence of port infrastructure	Resuspension and increase in sediment concentrations in the water during works, mainly the harbor limits[1]	– Comply with predetermined depth specifications
		Resuspension and increase in sediment concentrations in the water at the open-water disposal site and surrounding areas[1]	
		Alteration of bathymetry at dredging and open-water disposal sites[1]	
		Resuspension and increase in sediment concentrations in the water within the harbor limits[1]	
Coastal and Aquatic Vegetation	Construction: Construction site area Construction work Capital dredging Decommissioning and site rehabilitation	Loss of habitat areas in the harbor due to encroachment by new infrastructure	See also the mitigation measures related to water quality See also the mitigation measures related to sediment quality
		Disturbance of harbor habitats caused by construction and dredging activities	
		Risk of contamination from accidental spills	
		Disturbance of harbor habitats caused by new port activities	

Table 4-1: Issue: Protection of Coastal and Marine Habitats and their Biodiversity (next)

Enjeu : Protection des habitats côtiers et marins et leur biodiversité			
VEC	**Source of Effects**	**Effects**	**Mitigation Measures**
Marine Mammals	Construction: Construction work Capital dredging Transport and open-water disposal of sediments	Risk of disturbance associated with noise and vibrations generated by construction activities, barge movements, and open-water sediment disposal	– Comply with the scheduled work period – Ensure monitoring for the presence of marine mammals – Stop work if marine mammals are presents within a 400 m radius – Plan and adhere to the designated navigation corridor – Limit the speed of barge traffic – Inspect and ensure regular maintenance of machinery – Store and handle petroleum products in designated areas – Emergency response plan in case of a spill See also the mitigation measures related to water quality
		Risk of collision during barge movements to the open-water disposal site	
		Risk of behavioral changes due to increased suspended solids at the open-water disposal site and surrounding area	
		Risk of contamination from accidental spills	
		Risk of disturbance caused by new port infrastructure	
Birds	Construction: Construction site area Transport and traffic Construction work Capital dredging Transport and open-water disposal of sediments Operation: Presence of port infrastructure Transport and traffic Operation and maintenance of port infrastructure	Risk of temporary disturbance associated with noise and vibrations generated by construction activities in and around the harbor, barge movements, and open-water sediment disposal	– Comply with the scheduled work period – Ensure the absence of nests and eggs in the work areas – Mark and define the construction and work areas – Keep machinery and equipment in good working condition – Emergency response plan in case of a spill See also the mitigation measures related to noise environment
		Risk of changes in migration, feeding, or nesting behavior due to loss of utilisez areas and avoidance	
		Risk of contamination from accidental spills	
Phyto and zooplancton	Construction: Capital dredging Transport and open-water disposal of sediments	Temporary decrease in productivity due to increased suspended solids from construction, dredging, and open-water sediment disposal	See also the mitigation measures related to water quality See also the mitigation measures related to sediment quality
		Temporary decrease in productivity due to increased suspended solids from dredging.	
		Risk of contamination from accidental spills	
Benthic Invertebrates	Construction: Construction work Capital dredging Transport and open-water disposal of sediments	Loss of habitat at construction site (new infrastructure), dredging areas, and open-water sediment disposal site	See also the mitigation measures related to water quality See also the mitigation measures related to sediment quality
		Disturbance of habitats at construction, dredging, and open-water disposal sites due to increased suspended solids	
		Risk of contamination from accidental spills	
Fish and its habitat	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Operation: Operation and maintenance of port infrastructure	Loss of habitat at construction sites (new infrastructure)	– Comply with the scheduled work period See also the mitigation measures related to water quality See also the mitigation measures related to sediment quality
		Disturbance of habitats at construction, dredging, and open-water disposal sites due to increased suspended solids[1]	
		Risk of contamination from accidental spills during construction phase	
		Disturbance of habitats caused by new port activities	
		Disturbance and associated risk from underwater noise, vibrations, and collision risk	
		Risk of contamination from accidental spills during operation phase	
		Disturbance of habitats and noise-related disruption caused by new port activities	

1. Change also expected on federal domain land.

Table 4-2: Issue: Maintenance of Living Conditions

Issue: Maintenance of Living Conditions			
VEC	**Source of Effects**	**Effects**	**Mitigation Measures**
Air Quality	Construction: Transport and traffic Construction work Transport and open-water disposal of sediments Operation: Transport and traffic	Emission of particles and contaminants during work from machinery, barges, and trucks Emission of particles and contaminants from new port activities	– Keep machinery and equipment in good working condition – Limit idling of equipment and machinery – Ensure compliance with the traffic management plan – Limit truck speed – Use dust suppressants when necessary – Cover loads likely to generate dust with tarps – Keep access roads and work areas clean – Use truck washing stations
Noise	Construction: Construction site area Transport and traffic Construction work Operation: Transport and traffic Operation and maintenance of port infrastructure	Increase in noise levels at work sites, dredging areas, and open-water disposal sites[1] Increase in noise levels due to new port activities	– Comply with current municipal noise regulations – Equip machinery and trucks with appropriate devices to minimize noise – Keep machinery and equipment in good working condition – Use an acoustic enclosure for pile driving – Restrict pile driving to daytime hours – Ensure compliance with the traffic management plan – Limit truck speed – Inform residents of periods and duration of excessive noise
Living Conditions	Construction: Construction site area Transport and traffic Construction work Contaminated sediment management Operation: Transport and traffic Operation and maintenance of port infrastructure	Increase in nuisances associated with the presence of the construction site and work (noise and dust)[1] Increase in traffic, disruption of daily routines, and travel delays during construction[1] Increase in nuisances associated with new port activities	– Communicate the work schedule – Provide updates on work progress – Implement a complaint management plan – Properly delineate work areas and public spaces – Install appropriate signage for construction areas, work zones, and access points – Adjust lighting systems to minimize disturbances – Use sealed truck for transporting contaminated sediments See also the mitigation measures related to noise environment
Health and Safety	Construction: Transport and traffic Construction work Capital dredging Contaminated sediment management Operation: Transport and traffic Operation and maintenance of port infrastructure	Increase in nuisances associated with the presence of the construction site and work (noise and dust)[1] Increase in accident risks related to truck traffic during construction[1] Increase in nuisances associated with new port activities	– See also the mitigation measures related to air quality – See also the mitigation measures related to noise environment – See also the mitigation measures related to living conditions – Issue notices for work likely to disrupt traffic (e.g., lane closures or traffic rerouting) using various communication channels selected based on the level of disruption (e.g., email to partners, social media posts, ads in weekly newspapers, press releases, variable message signs, information sessions, etc.). – Ensure efficient vehicle traffic, install the necessary signage upstream of work areas as well as upstream of exits onto Route 195 and Rue du Port, and clearly indicate any changes to road traffic. – Maintain the traffic lanes in good condition and take the necessary measures to ensure they can be used and crossed without difficulty by road users. A patrol to check signage will be carried out daily. – Remove any debris, waste, or other materials that could hinder or pose a danger to the use of bike paths and the waterway in the work area. – Install appropriate signage to inform and guide cyclists using bike paths (including the Route verte), pedestrians, and boaters navigating the waterway in the work area, as well as users of the Matane marina. – Ensure compliance with Transport Canada requirements for the construction of works in navigable waters, particularly regarding the installation of buoys and markers and the management of materials and debris. – Ensure free navigation at all times along the waterway axis. Install markers around work areas to delineate them, inform, and guide boaters, in accordance with Transport Canada regulations and authorizations.

1. Change also expected on federal domain land.

Table 4-3: Issue: Reconciliation of Land Uses

Issue: Reconciliation of Land Use			
VEC	**Source of Effects**	**Effects**	**Mitigation Measures**
Land Use	Construction: Construction site area Transport and traffic Construction work Capital dredging Transport and open-water disposal of sediments Operation: Transport and traffic Operation and maintenance of port infrastructure	Disruption of economic activities during construction, including those taking place at the fishermen's wharf owned by DFO[1]	– Communicate the work schedule – Provide updates on work progress – Coordinate work with activities in the harbour area – Implement a complaint management system – Properly delineate work areas and public spaces – Install appropriate signage for construction areas, work zones, and access points – Issue a navigation notice
		Disruption of recreational activities during construction	
		Disturbance to users during construction, including fishermen using the fishermen's wharf and the water lot in front of it, which is federally owned (DFO)[1]	
		No changes are expected on the water lot owned by DFO (Small Craft Harbours) during operations	
		Disturbance to users due to new port activities[1]	
Presence and Current Use of the Territory by First Nations	Construction: Construction work Capital dredging Transport and open-water disposal of sediments Operation: Transport and traffic Operation and maintenance of port infrastructure	Limited disruption of traditional economic activities related to commercial fishing during construction	– Inform authorities, companies, and concerned users of the work schedule and keep them updated on progress. – Coordinate work with activities in the harbour area. – Implement a system for receiving and handling information requests and complaints. Collect any concerns, feedback, requests, or complaints and establish follow-up and support measures as needed. – Properly delineate the perimeter of work areas and public spaces. – Install appropriate signage for construction areas, work zones, and access points. – Issue a navigation notice and install temporary signage to clearly indicate obstructions to navigators.
		No disruption of social and health conditions due to the remoteness of reserves or communities concerned by the project, and because anticipated fishing disruptions during construction are limited	
		No impact on natural and cultural heritage due to the low potential assessed in the work area, and because there is no effect on Atlantic salmon, a species valued by First Nations	
		Disturbance to users, especially Indigenous fishers, during construction	
		Disturbance to users, especially Indigenous fishers, due to new port activities	
Infrastructure and services	Construction: Transport and traffic Operation: Transport and traffic Operation and maintenance of port infrastructure	Pressure on road infrastructure during construction	– Restore damaged infrastructure See also mitigation measure related to Land Use
		Disruption of harbour services, particularly at the fishermen's wharf owned by DFO, during construction[1]	
		Pressure on infrastructure due to new port activities	

1. Change also expected on federal domain land.

– Despite efforts to avoid and minimize impacts, the new infrastructure will result in a permanent encroachment on fish habitat totaling 45,748 m², including part of a macrophyte bed (6,335 m²). Added to this is a permanent alteration caused by capital dredging and the addition of two rows of armor stones, totaling 33,266 m². For the most part, these are muddy habitats already disturbed by activities within the harbor or by past dredging operations. A fish habitat compensation program will be implemented to offset these losses.
– Disturbance of fish habitat at the disposal site totals 90,200 m². Benthic invertebrate communities will be most affected by the disposal of dredged sediments, and community recovery could take several years.
– The proposed project does not compromise the potential designation of protected areas (e.g., WCA or land reserve for protected area purposes).

MAINTENANCE OF LIVING CONDITIONS

Following the assessment of impacts on each VEC retained for the issue of maintaining living conditions, the main findings are as follows:

– Results from atmospheric and noise dispersion modeling indicate that very few exceedances of applicable criteria are expected near the construction site during the work or during operation of the new port infrastructure.
– The tranquility of residents along the section of Rue Matane-sur-Mer between the STQ terminal entrance and Rue du Port is already heavily disturbed by industrial-port activities that have been ongoing for several years. Nevertheless, the work will generate nuisances related to noise, dust, and traffic for the local population.
– Increased heavy traffic on the road network will compromise safety by disrupting travel habits.
– The industrial-port framework strongly influences the visual environment and landscape, reducing the visual field for most stationary and mobile observers. Consequently, impacts associated with changes to the landscape and visual environment resulting from the redevelopment of port infrastructure are limited.

The Matane port infrastructure redevelopment project was designed to consider the repercussions of increased transportation and traffic, as well as noise and dust levels, on the living conditions of residents and primary users of the study area. Based on these findings, the integration of specific mitigation measures by SPBSG—such as implementing a heavy vehicle traffic management plan and maintaining dialogue with the population—will help preserve living conditions for residents and other users near the work zone. Although an increase in certain nuisances is anticipated during the operation phase, particularly heavy traffic, recent modifications made by the City of Matane are considered sufficient to ensure the safety of residents and other users of Rue Matane-sur-Mer. For workers and other users of the Port of Matane, the sense of safety could even improve during the operational phase.

CONCILIATION OF LAND USES

Following the assessment of impacts on each VEC retained for the issue of reconciling land uses—namely land use, the presence and current use of lands by First Nations, and infrastructure and services—the main findings are as follows:

– Except for dredging activities, the construction site is concentrated within a defined portion of the Port of Matane, which ensures the continuation of user activities, including commercial and Indigenous fishing, during the work and limits disruptions to their proper functioning.
– The work sequence was designed to minimize encroachment on other lands within the industrial-port zone, which has the advantage of making land available to support regional economic development.

– Valued uses, particularly fishing, received special attention to ensure that anticipated impacts during construction or operation do not compromise long-term performance.
– The long-term presence of the new port infrastructure is compatible with current uses within the Port of Matane, as the nature of port activities will not change.
– Several communication methods are planned by SPBSG to inform various users and residents of Rue Matane-sur-Mer about the construction schedule.

4.2 Summary of Cumulative Effects

By definition, cumulative effects result from the spatial and temporal overlap of impacts from the project under study (redevelopment of Matane's port infrastructure) with those of other projects and activities on the same VECs. While analyzing each project individually only identifies its specific impacts, cumulative effects analysis highlights potential synergies between different projects within the same environment–something individual project assessments cannot reveal.

The impact analysis for the Matane port redevelopment project identified effects related to changes in the hydro-sedimentary regime, water quality in the harbor and at the open-water disposal site, mainly due to dredging and sediment disposal. Similar considerations apply to marine fauna supported by the marine environment. For the human environment, the analysis identified nuisances during construction, such as noise, traffic, and dust, as well as disruptions to certain uses and activities, and an increase in commercial and industrial activity following the redevelopment of port infrastructure.

Impacts on four VECs–hydro-sedimentary regime, water and sediment quality, marine fauna, living conditions, and land uses–were assessed.

For the hydro-sedimentary regime and water and sediment quality, the analysis revealed that the limited impact of the project (within the harbor and at the open-water disposal site), combined with two other projects or activities in the same sector, suggests that the project will not make a significant contribution to cumulative effects on this VEC.

For marine fauna, habitat loss or disturbance is confined to three locations: the harbor, the open-water disposal site, and along the west breakwater. Given the nature of the habitats lost or disturbed and the presence of several protected areas nearby, cumulative effects on this VEC are considered insignificant.

For human environment VECs (living conditions and land uses), these will be influenced by construction activities and by economic activities and effects induced by project implementation. For these two VECs, construction work and the additional commercial and industrial activity induced by port infrastructure could accumulate in space and time, contributing to increased nuisances, particularly those related to noise and traffic. Aware of this potential cumulative effect during construction, SPBSG has committed to implementing a communication plan and a traffic management plan to limit nuisances for residents of Matane-sur-Mer, businesses, and Route 132 users. In collaboration with the City of Matane, SPBSG will be able to adapt its traffic plan, if necessary, in the event of conflicts with other projects that may occur nearby.

4.3 Environmental Monitoring and Follow-up

Environmental monitoring and follow-up programs aim to ensure compliance with environmental requirements at each phase of a project, whether during construction, operation, or maintenance. These programs also include managing changes or unforeseen elements that could arise and alter the environment during the construction and operational phases of the project.

The monitoring program differs from the follow-up program in that it ensures compliance with applicable laws and regulations during the construction phase. It also verifies that the mitigation measures outlined in the impact study are effectively implemented. The follow-up program, on the other hand, focuses primarily on assessing the effectiveness of the planned mitigation measures and making necessary adjustments if required. In some cases, follow-up helps document the recovery of a component after the completion of work.

In accordance with the specific directive issued for the project, these preliminary programs will be finalized during the preparation of ministerial authorization requests, following the issuance of the government decree. It should be noted that SPBSG is responsible for implementing the environmental monitoring and follow-up programs. During construction, operation, and maintenance phases, SPBSG may mandate external parties to carry out these programs, but it remains accountable to the relevant authorities.

4.3.1 Environmental Monitoring Program

SPBSG will implement an environmental monitoring program specific to the Matane port infrastructure redevelopment project. This program aims to ensure the proper execution of construction work and minimize the project's environmental impacts by ensuring the application of proposed mitigation measures and, if necessary, corrective actions. Compliance with regulations and laws will also be considered under the monitoring program.

Specifically, the activities of the Matane port infrastructure redevelopment project subject to environmental monitoring are those that could impact the following VECs during the construction phase:

- Surface water quality.
- Marine mammals.
- Acoustic environment.
- Birds during nesting.

4.3.2 Environmental Follow-up Program

Given the nature of the work, SPBSG plans to conduct environmental follow-up on benthic communities. This follow-up, carried out at the open-water disposal site, consists of documenting the effect of dredged sediment release and assessing the recovery of communities at the disposal site.

4.4 Compensation

4.4.1 Losses and Modification

To determine losses and modifications in the aquatic environment, the seabed footprint of the proposed port infrastructure was used. The Matane port redevelopment project will result in direct encroachments on the aquatic environment or habitat modifications in the littoral zone, defined as follows:

- Permanent loss in the littoral zone: area occupied by permanent port infrastructure in the littoral zone, including the west breakwater.
- Modification in the littoral zone: areas within the harbor targeted for capital dredging as well as the open-water disposal site, which will become available for fish after disturbance during construction.

In total, the project will cause permanent encroachments on the aquatic environment estimated at 45,748 m² (Table 5-4). As for permanent encroachments on the shoreline, the project was designed to avoid them.

Table 4-4: Encroachment of Construction Activities on the Aquatic Environment

Project Component	Loss and Alteration of the Aquatic Environment (m²)		
	Permanent Loss	Modification	Temporary Loss
Berth no. 2	26,905	—	—
Reconstruction of Berth no. 1	6,047	—	—
West Breakwater	6,461	8,880	—
Capital Dredging	6,335[1]	24,386	—
Open-water Disposal site	—	90,200	—
Total	**45,748**	**123,466**	**—**

1. Correspond aux superficies des herbiers de macrophytes empiétés dans le chenal des pêcheurs.

4.4.2 Compensation Approach

SPBSG proposes compensation for permanent losses in the aquatic environment caused by the redevelopment of port infrastructure in Matane. The two intended compensation approaches are as follows:

- Off-site compensation.
- Financial compensation, if applicable.

It should be noted that for off-site compensation, detailed compensation plans will be presented during the authorization requests for the selected project(s). These plans will include detailed concepts, timelines, and proposed monitoring measures. SPBSG commits to carrying out compensation in accordance with the established regulatory framework.

4.5 Adaptation to Climate Change and Greenhouse Gases

4.5.1 Assessment of Project Resilience to Climate Change

A climate change resilience assessment was conducted to better understand the risks to the Matane port infrastructure redevelopment project considering scientifically projected climate changes for 2070-2100. Following an analysis of project documentation, 56 potential interactions between major climatic or hydroclimatic hazards that could affect the site, and the main categories of project components were identified.

The detailed analysis resulted in most risk scores being classified as low, with a few moderate risks, particularly regarding hazards such as storm surges and waves, rising sea levels, and freeze-thaw cycles. No high-risk scores were identified. For interactions related to ocean acidification and fog, no score could be assigned due to insufficient information on the future evolution of these hazards.

Engineers from Norda Stelo and Lasalle | NHC conducted in-depth studies to evaluate and design the Matane port infrastructure redevelopment in the context of climate change. They performed modeling of extreme water levels, waves, storm surges, and marine currents, validating their models with historical data from regional tide gauges.

They also analyzed ice dynamics, navigation impacts, and water quality during dredging activities. Their recommendations include measures to strengthen infrastructure, such as raising structures and adding scour protection. The team also proposed resilience solutions based on environmental impact analysis and risks associated with future climate changes.

The main issue remains the “rise in sea level” combined with “storm surges and waves,” which must be closely monitored as scientific data evolves. Implementing a monitoring program is recommended, as well as future evaluation of the need to raise each segment should climatic conditions worsen.

4.5.2 Quantification of Greenhouse Gas Emissions

As required by the directive, a quantification of the project’s GHG emissions was carried out based on the MELCCFP *Greenhouse Gas Emission Quantification Guide* (2022) (Consortium Norda Stelo/Englobe, 2025).

After analyzing the impact sources retained for the assessment of potential impacts, the sources of GHG emissions attributable to the construction phase of the project were identified. Direct emission sources are mainly related to fuel combustion for machinery and material transport. This phase of the project was divided into five stages: dredging of the fishermen’s channel, dredging of berth No. 2, dredging of other harbor sectors and construction of berth No. 2, demolition and reconstruction of berth No. 1, and reconstruction of the water supply network and roadwork.

During the operational phase, the main emissions are associated with maintenance of the new port infrastructure and its operation, including vessels at berth or maneuvering. Quantification considers the worst-case scenario of simultaneous operation of both berths.

According to the results, the year generating the most GHG emissions during construction is Year 4, with 10,868 t CO_2 eq, mainly due to demolition/reconstruction of the piles for berth No. 1. Year 2 accounts for the lowest emissions, with 6,199 t CO_2 eq. Year 3 is also significant due to indirect emissions from transport and placement of fill and armor stone during construction of berth No. 2.

For GHG emissions during the operational phase, totals are higher when considering the entire period (50 years). However, average annual emissions are lower than during the five-year construction phase. The main source of direct emissions is attributed to the use of cargo handling equipment (47.8%). For visiting vessels, direct emissions account for about 9% of total system emissions, most of which occur while vessels are docked (94%).

Finally, the project does not result in any loss of carbon sequestration related to deforestation or encroachment on wetlands, as these sources are absent from the project.

During construction, indirect GHG emissions are much higher than direct emissions. Between Year 1 and Year 5 of construction, indirect emissions account for 75.1%, 85.4%, 92.7%, 96.4%, and 98.3% of total annual GHG emissions, respectively. In the operational phase, the proportion of indirect GHG emissions is 14.8%, quickly reaching a plateau at 16.9% annually.

SPBSG could consider mitigation measures to limit GHG emissions from project implementation, including analyzing alternative cargo handling equipment to decarbonize operations, implementing shore power, selecting suppliers and materials with lower carbon footprints where possible, and using more fuel-efficient machinery on-site.

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