SNC·LAVALIN

Project to build and operate a new port terminal in the Sorel-Tracy industrial port area, Saint-Laurent sector

Summary of the detailed project description (Part G)

QSL International Ltée

Engineering Services

QSL

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Summary
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QSL International Ltd.

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Part G: Summary

1 Project Context

QSL International Ltd. (hereinafter the "Proponent" or "QSL") is a Quebec City-based company operating over 60 terminals in North America. It is responsible for handling more than 26 million tonnes of cargo per year and owns and operates a private port terminal located in Saint-Joseph-de-Sorel, at the mouth of the Richelieu River.

The proponent wishes to develop a port terminal in the Sorel-Tracy industrial-port zone, Saint-Laurent sector, which is located 8.2 km upstream from the Saint-Joseph-de-Sorel wharf, on the site of the former Tracy thermal power plant, which has been dismantled and rehabilitated. The address of the site is 12125, route Marie-Victorin, in Sorel-Tracy.

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2 Project Justification

In 2015, the Quebec government presented the Maritime Strategy, a project aimed at stimulating sustainable growth in Quebec's maritime economy. This project included a five-step action plan, including the development of industrial-port zones along the seaway. In 2015, the City of Sorel-Tracy expressed interest to Hydro-Québec in acquiring the land of the former Tracy thermal power plant to develop an industrial-port complex. The City wanted to convert certain infrastructures of the former thermal power plant into a marine terminal, and, thus, acquire a development and investment attraction tool that creates wealth throughout its territory.

In April 2017, the City of Sorel-Tracy filed a project notice with the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC) for the development of the Sorel-Tracy port complex, as well as a private bill with the Quebec National Assembly to establish the Société du complexe portuaire de Sorel-Tracy (Bill 225) to manage port operations. The City's objective was to diversify the regional economy and reduce the territory's economic dependence on large-scale industry. Considering the multiple challenges associated with the development of a port complex, the City decided in 2020 to enter into an agreement with QSL to lease the site for port operations and delegate the management of the port project to QSL.

The Saint-Joseph-de-Sorel port terminal operated by QSL is currently at maximum capacity and this congestion is causing significant wait times for vessels. Wait times for vessels can reach up to 30 days before unloading during peak season. In 2021, the wait time on the river was 289 days. This second port terminal in Sorel would contribute to a significant reduction in vessel waiting time at sea (objective of a 200-day reduction in waiting time). The new port terminal would also reduce truck traffic in the community of Saint-Joseph-de-Sorel by redirecting it to an industrial zone (St. Lawrence sector) farther from residential areas.

In addition, there are restrictions on the maximum size and tonnage that can be shipped via the seaway and some vessels must be unloaded before they can proceed upstream. The addition of a dock will allow for faster unloading of vessels that subsequently use the seaway thereby reducing delivery times and lowering costs.

The addition of a new dock, combined with storage facilities and eventually a multimodal transition area, would represent a new offer to the market that would reduce ship transshipment time and improve the fluidity of the logistics chain. The location of this new terminal would provide access to the river, the railroad, and Highway 30.

The new terminal would reduce the greenhouse gas (GHG) emissions associated with the operation of the engines of the auxiliary units of the ships waiting at the port terminals in this sector. The transfer of goods from the road network to a possible rail network would also contribute to the reduction of GHGs by reducing the importance of the transit of goods from the Saint-Joseph-de-Sorel wharf to the St. Lawrence sector warehouse, which represented 48,000 km of trucking for the year 2021. Overall, the project allows a reduction of GHG emissions by reducing the waiting time for ships at sea and by reducing the trucking between the existing Saint-Joseph's dock and the warehouse several kilometres away.

At the new port terminal, the reception and handling of various fertilizers, road salt, copper anodes and steel components are anticipated. The implementation of a new port terminal would allow agricultural producers to be supplied with fertilizers and seeds, while allowing them to export their products. A new wharf in the Sorel region could attract new investors and industrial occupants and support the region's ability to attract and sustain investment in the maritime sector.

Significant additional economic benefits are expected for the region. In fact, the project could ultimately generate up to approximately 50 jobs. QSL adopts practices to recruit and train its workforce. To this end, QSL is an active member of the Chantier d'attraction de la main-d'œuvre de la ville de Sorel-Tracy et de sa région. The Chantier d'attraction acts in concert and assists employers in the city of Sorel-Tracy and its region in the face of numerous issues arising from the labour shortage phenomenon and the difficulty of attracting and retaining talent in the region. The nature of the jobs offered is diversified since there are different types of occupation possible within the company such as management, professional, technical, supervisory and labour positions.

3 Project Description

Two types of docks are currently under consideration, a floating dock with a pile foundation (Option A) or a reinforced concrete pier foundation (Option B). Option B is presented as an alternative in Section 4. Plans are available in Appendix A.

3.1 Main infrastructures and permanent structures and facilities

The Marine Terminal Project is intended to include the following activities:

› The use of a storage area consisting of a warehouse (9,704 m^2) and of an open outdoor storage area (25,600 m^2);

- The construction of a floating dock composed of two floating barges (approach barge and reception barge);
- The addition of spuds with the capacity to receive ships of more than 25,000 DWT to the approach barge to provide support to the sea floor;
- The construction of two dolphins consisting of 12 steel piles filled with concrete;
- The construction of a concrete pile where a spinnaker pole will be fixed (horizontal mobile beam for the mooring of ships);
- The construction of an electric conveyor on the approach barge for the transport of bulk materials from ships to the warehouse;
- The use of the existing intake blocks at the former thermal power plant to secure the transshipment dock and moor the ships at the dock;
- The inclusion of a metal or steel transition section between the approach barge and the intake as a loading ramp
- The construction of a transfer tower and an electric conveyor to ensure the passage of bulk cargo over Route 132.

The trucking route that will be used to transport the merchandise is governed by the City of Sorel-Tracy's regulations that identify prohibited and authorized roads for heavy vehicle traffic.

3.2 Related infrastructure

Depending on the demand from the agricultural and industrial sectors and the vision of the city of Sorel-Tracy, the following related infrastructure could be developed in a later phase, but no schedule for implementation is currently being considered:

- The construction of a rail line parallel to CN's of approximately 300 metres;
- The construction of the switches required for the connection to the existing network;
- The construction of a Y-lane and an access road on Marie-Victorin Boulevard to allow other users to access the railway facilities;
- The construction of a bypass of the local network with rapid access to exit 135 of Highway 30.

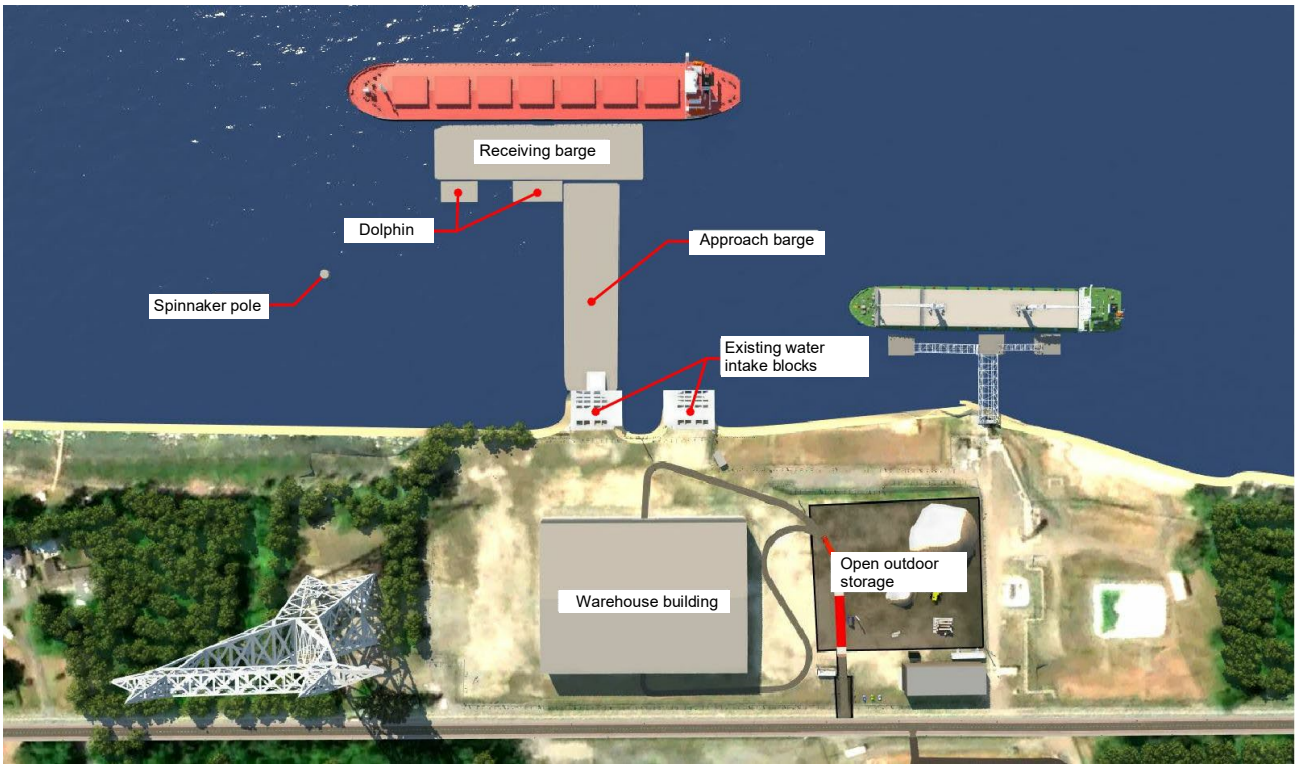

Figure 1 Conceptual drawing of the new floating dock on piles (plan view)

3.3 Main construction activities

During the construction phase, materials will be supplied exclusively by land, with the exception of barges, which will be delivered by sea by a tugboat. To date, the estimated number of trips for the land transportation of materials is just over 400 trips.

Storage of construction materials will not be conducted in the existing warehouse. Construction activities will be carried out during the day, between 7:00 a.m. and 7:00 p.m., 5 days a week, with possible light work at night or on weekends when necessary, over a non-continuous 24-month period.

Given the location of the proposed dock, no access roads, deforestation, stripping, excavation, grading or dredging will be required for site preparation, temporary facilities (site trailer, material storage area, machinery refuelling area, temporary sanitary facilities, etc.) or dock installation.

The loading of barges with equipment and machinery will take place from the wharf #10 in Ludger-Simard Park, located approximately 7 km from the site. At this location, QSL has the rights to use not only the dock, but also the adjacent land. Ludger-Simard Park's marine infrastructures, administered by the Société des parcs industriels Sorel-Tracy, are frequently used by barges.

The machinery and equipment that may be used for construction activities include hydraulic shovels, wheel loaders, vibratory hammering equipment, concrete mixers, concrete pumps, barges, and tugboats.

For the construction of the dolphins, all operations will be carried out from temporary barges. The installation of the piles will be done by vibro-drilling with the help of a crane on a barge, given the nature of the soil and the

size of the piles to be installed. Barges with access equipment will also be required to carry out the formwork, reinforcement and concreting of the dolphin head. To deliver the concrete to the foundation units farthest from the shore, extensions will have to be installed on a concrete pump.

3.4 Main Operating Activities

The planned activities are limited to the unloading of ships. The bulk cargo is the primary focus of future operations, although some steel and oversize cargo may also be handled. The unloading (or loading) of bulk cargo will take place continuously day and night (24 hours a day). The bulk cargo represents about 50% of the expected vessels. For other cargo, stowage activities are expected to take place during the day, although in a few exceptions (less than 10%) some activities could take place until 1:00 a.m.

3.5 Maximum Project Capacity and Size

Ultimately, the wharf, which is about 145 m long, could accommodate 35 bulk carriers per year with an average tonnage of about 12,575 tonnes, for a total unloaded tonnage of about 440,000 MT/year. Depending on the evolution of the ice cover, the barges could be removed in winter and the wharf would be operated 9 months per year.

Such activities could generate an off-site trucking in the order of 6,000 vehicles/year at the start of operations. Ultimately, a maximum of 14,600 truck trips/year could be expected with a dock operating at maximum capacity.

3.6 Schedule of major activities

The main activities leading to the operation of the new terminal are presented in Table 3-1.

Table 3-1 Schedule for completion

Activities	Schedule
Preparatory studies	
Filing of the Initial Project Description	September 2022
Filing of Detailed Project Description and Responses to the Summary of Issues	December 2022
Posting of final version of Tailored Impact Statement Guidelines and Plans by the Agency	March 2023 (End of 180-day phase)
Impact Assessment Process	
Filling of Impact Statement	February 2024 (11 months)
Impact Assessment by the Agency	December 2024 (up to 300 days)
Decision Statement bu the Minister	January 2025 (30 days)
Post-decision	
Start of construction	Spring 2025
End of construction	2027*

* To be confirmed based on the period of prohibition of work in the aquatic environment

- There is no deadline for site operations. This means that no activities related to site closure/decommissioning are contemplated.

4 Potential Alternatives

Of the potential alternatives considered, the following alternatives were ruled out:

- Expansion (construction of a second berth) and modification of operations at the existing Saint-Joseph-de-Sorel dock;
- The construction of a dock consisting of a pier with protective stonework, followed by a loading/unloading area at the head of the dock supported by steel sheet piles buried in the sea floor;
- The construction of a "T" shaped dock.

It should be noted that due to the development orientations and wishes of the City of Sorel-Tracy, geographical and geotechnical constraints, the availability of the already rehabilitated industrial site and the possible logistics at the site, no other sites were considered for the project..

The construction of a hybrid dock with a floating reception barge and a fixed deck on piles for the approach section is an alternative solution under study.

5 Applicable Provisions

The new port terminal is designed to accommodate a variety of vessels ranging from barges to ships and with a carrying capacity ranging from 10,000 to 35,000 DWT, and is therefore subject to the Impact Assessment Act in accordance with the following provision of the Schedule to the *Physical Activities Regulations* (SOR/2019-285):

52 : The construction, operation, decommissioning, and closure of a new marine terminal designed to accommodate vessels over 25 000 DWT.

The Agency will need to determine, at the conclusion of the project planning process, whether the project will be subject to an impact assessment. The Agency will make this decision by determining whether the project is likely to have significant environmental effects on one or more of the components referred to in the first paragraph of Section 7 of the *Impact Assessment Act*.

The designated project is not a component of a larger project that is not listed as a project in the *Regulations designating physical activities*.

6 Legal Context

At the federal level, authorizations and permits could be required by the federal authorities:

- Under the *Fisheries Act (*R.S.C., 1985, c. F-14) (DFO)
- Under the *Species at Risk Act* (S.C. 2002, c. 29) (ECCC and DFO)
- Under the *Canadian Navigable Waters Act* (R.S.C. 1985, c. N-22) (TC)

At the provincial level, the project will be assessed in accordance with the Southern Quebec Environmental Impact Assessment and Review Process. Once the ministerial decree is obtained, authorizations and permits may be required (non-exhaustive list):

- Under the *Environment Quality Act* (RLRQ, chapter Q-2) (MELCCFP)

- Under the *Cultural Heritage Act* (P-9.002) and the *Archaeological Research Regulation* (P - 9.002, r. 2.1) (MCC)
- Under the *Act Respecting Threatened and Vulnerable Species* (E-12.01) (MELCCFP)
- Under the *Act Respecting the Conservation and Development of Wildlife* (c. C-61.1) (MELCCFP)

The project is also governed by all the regulatory requirements of the city of Sorel-Tracy during construction.

7 Engagement activities

7.1 Consultation process

The first public information activities took place at the end of 2020 when the City of Sorel-Tracy announced at a press conference that it was partnering with QSL to develop the Sorel-Tracy industrial port area in the Saint-Laurent sector.

In February 2021, an advertising campaign about the development project of the industrial-port zone in Sorel-Tracy was launched to inform citizens and various initiatives were set up.

In the summer of 2022, pre-assessment meetings were held by QSL. To date, several environmental and socio-economic groups have been invited to invitational meetings.

The following jurisdictions, Indigenous, and non-Indigenous organizations have been met with:

- Member of Provincial Parliament (CAQ);
- Representatives of the Ministère des Transports du Québec;
- Council of Mayors of the Regional County Municipality of Pierre-De Saurel;
- Member of Federal Parliament (Bloc Québécois);
- Société des parcs industriels de Sorel-Tracy;
- Pierre-De Saurel Economic Development Corporation;
- Chamber of Commerce and Industry of Sorel-Tracy;
- Representatives of the MELCC water domain;
- Laurentian Pilotage Authority;
- Federal Department of Transport Canada;
- Quebec Ministry of the Economy and Innovation;
- Kildair Services;
- Central St. Lawrence Pilotage Corporation;
- Montreal Port Authority;
- COVABAR (Comité de concertation et de valorisation du bassin de la rivière Richelieu);
- Lac Saint-Pierre ZIP Committee;
- Pierre-De Saurel Community Development Corporation;
- Carrefour jeunesse-emploi de Pierre-De Saurel;
- Canadian Parks and Wilderness Society (CPAWS Quebec);
- Quebec Centre for Environmental Law (CQDC);
- Mohawk Council of Kahnawake (MCK);
- Huron-Wendat Nation (HWN).

A dialogue was also initiated with representatives of these communities:

- Abenaki (W8banakiak)
  - Odanak;
  - Wôlinak (W8linak)
- Mohawk (Kanien'kehá:ka)
  - Kahnawake (Kahnawà :ke);
  - Kanesatake (Kanehsatà:ke);
  - Akwesasne (Ahkwesáhsne);
- Huron-Wendat of Wendake.

7.2 Engagement Results

Table 7-1 presents the main concerns and issues raised during the pre-engagement activities.

Table 7-1 Key concerns and issues raised during pre-engagement activities

Category	Concern/issue/opportunity
Sanitary conditions, human health, and well-being	Air quality
	Water quality
	Noise
	Job creation and local partnerships
	Increased road transportation
Indigenous Peoples	Impact of the project on the traditional activities of the First Nations
	Involvement of the First Nations in the realization of the sector-based studies and impact study
Accidents and failures	Accidental spills and method of transferring materials
	Navigation safety and proximity to nearby dock concerns were raised
	Dock's stability and risks during unloading
	Material storage and cohabitation
	Risks of leaching and erosion of materials
Biological Environment	Protection of species at risk
	Protection of fish
	Impact of the structure on the seabed
	Cumulative habitat loss and fragmentation
	Impact on designated critical habitat for copper redhorse
	Impact on migratory fish species
Assessment of direct, indirect, and cumulative effects	Project impact on truck and train traffic in Kahnawà:ke.
	Increase in marine traffic in the Seaway, in Lake Saint-Pierre and upstream
	Consideration and accurate assessment of cumulative impacts and the project's contribution to cumulative impacts on the environment, the St. Lawrence River and sensitive species

7.3 Response to Summary of Issues

Appendix 3 of the Detailed Project Description (DPD) presents the summary of issues raised by the Canadian Impact Assessment Agency (CIAA) during the 30-day public consultation period on the Initial Project Description (IPD) summary through specific consultations with federal departments and Indigenous communities, information sessions with the public, as well as through comments received on the Canadian Impact Assessment Registry. QSL's responses to these are included and the RFP provides some additional elements to respond to these comments and concerns. As a partner in the project, the City of Sorel-Tracy has also provided some responses, which are not the responsibility or jurisdiction of QSL.

7.4 Future Engagement Plan

QSL's future engagement plan includes :

- An open house type event;
- Workshops with Indigenous communities;
- Forwarding Indigenous community sections for comment.

Once the adapted guidelines are provided by the Agency, QSL will begin a plan to work with the targeted Indigenous communities

8 Project Location

The construction and operation project of the new port terminal is located in the Saint-Laurent sector of the Sorel-Tracy IP zone, in the Pierre-De Saurel RCM, in the Montérégie administrative region. According to the RMC's development plan, the assignment is "Industrial".

The limited study area (13.5 ha) includes the proposed infrastructures and the lots on which they are located. It is located in an active industrial-port zone. The City of Sorel-Tracy owns the lots on which the infrastructures are projected.

The geographic coordinates of the proposed locations of the main permanent and related facilities are :

- The central docking point for ships and boats: 45°59'47.56 "N, 73°10'31.45 "W
- The point of attachment of the dock to the shoreline: 45°59'45.87 "N, 73°10'25.72 "W
- The northern corner of dolphin West: 45°59'45.60 "N, 73°10'33.60 "W
- The northern corner of dolphin East: 45°59'47.04 "N, 73°10'30.00 "W
- The centroid of the warehouse: 45°59'47.53 "N, 73°10'19.83 "W

Permanent residences and inhabited buildings of the project are located 200 m south of the warehouse (terminal) and 350 m north.

The project is partly located in the St. Lawrence River, an area where several First Nations have land claims. The First Nations most likely to be affected by the project and their distance from the study area are:

- W8banakiak of Odanak (25 km);
- W8banakiak of Wôlinak (W8linak) (67 km);
- Kanien:keha'ka of Kahnawà:ke (73 km);
- Kanien:keha'ka of Kanehsatà:ke (87 km);

- Kanien:keha'ka of Ahkwesáhsne (142 km);
- Huron-Wendat of Wendake (168 km).

The Contrecoeur Islands National Wildlife Area is located 8 km upstream from the project site. The St. Lawrence Seaway is located in the St. Lawrence River channel in front of the proposed dock, approximately 425 metres away.

9 Environmental Studies and Regional Assessments related to the project

In addition to the studies available for the dismantling of the Tracy thermal power plant, complementary studies were also carried out specifically for the implementation of the project:

- SNC-Lavalin's biophysical characterization (baseline) in 2021 for the installation of the floating dock;
- Geotechnical reconnaissance studies in the marine environment and at the warehouse site;
- Sediment characterization;
- Economic impact study of QSL in the Sorel-Tracy region
- Pilotage and berthing simulation study at the proposed dock and at the Kildair dock.

The pilotage and berthing simulation study, whose objective was to ensure that manoeuvres could be carried out safely and to verify whether operations at the nearby Kildair Service ULC dock could continue unhindered, concluded that under normal operating conditions, berthing and unberthing could be carried out at the new QSL dock without interfering with operations at the Kildair Services dock.

It was also demonstrated that following an engine failure on final approach to the Kildair Service ULC dock, the vessel could be controlled by the tugs and directed to a safe location before it could pose a danger to either dock, as well as to a vessel that might be berthed at the QSL dock.

The recommendations clearly identify conditions that allow for safe maneuvering and equally clearly identify conditions under which certain maneuvers should not be performed.

Additional studies are to come and include, among others:

- Phase I environmental characterization;
- Current and ice studies
- Vessel mooring plan;
- Atmospheric dispersion study;
- GHG study update;
- Ambient Noise Study
- Vibration Study;
- Archaeological potential study

9.1 Regional Assessments

A regional assessment of the St. Lawrence River Area began in July 2020 and is currently being conducted by the Canadian Impact Assessment Agency. This regional assessment is intended to inform future impact assessments and project-specific federal decisions in this region. This assessment will be conducted in collaboration with the Province of Quebec, Indigenous Peoples, federal authorities, non-governmental organizations and the public.

An assessment of the cumulative effects of marine activities on the St. Lawrence and Saguenay rivers (Beauchesne et al, 2022) is being conducted by a team of researchers from Laval University, in collaboration with the Government of Canada, the Government of Quebec, Indigenous Peoples, various marine stakeholders and coastal communities. This pilot project is testing a methodological framework for assessing the cumulative effects of marine activities, including commercial ships, cruise ships, ferries, fishing vessels and pleasure craft. The results of the cumulative effects assessment indicate that the Sorel-Tracy sector is among the major port cities in the river sector that are particularly susceptible to stressful effects. It is also indicated that the entire navigation channel between Trois-Rivières and Montreal, including Lake Saint-Pierre, is especially at risk to cumulative effects.

10 Strategic Assessment

The initial project description takes into account Environment and Climate Change Canada's Strategic Assessment of Climate Change, carried out under section 95 of the *Impact Assessment Act* (S.C. 2019, c. 28, s. 1). This strategic assessment provides guidance on how information related to greenhouse gases (GHGs) and climate change resilience should be submitted in the federal impact assessment process and requires proponents whose project has a lifespan beyond 2050 to describe how the project will achieve net zero emissions by 2050. This is intended to ensure consistent, predictable, effective, and transparent consideration of climate change throughout the impact assessment process.

11 Biological and physical environment

Where available, the description of the biological and physical environment is supported by the most recent studies available for the project, as described in section 9.

11.1 Summary description of the environment

The project is located in the St. Lawrence River, which originates in Lake Ontario and flows northeast to Montreal and Quebec City before emptying into the Gulf of St. Lawrence. The water level varies by a few centimetres during summer semidiurnal tides and by about 20 centimetres during spring tides. The water level can vary by about twenty centimetres twice a month during the synodic tide (full moon/new moon).

Boreholes have revealed the presence of a 5 to 12 m thick layer of mostly sandy silt in the area of the dock. A argillaceous horizon more than 50 m thick lies below. The sediment characterization study showed slight exceedances for certain criteria, but none that required special sediment management. The receiving barge would therefore be located at a depth greater than the depth where maintenance dredging would be required, i.e., a depth of 10.5 m at the geodetic water level elevation of 3.44 m (minimum level). No dredging is planned during construction.

The available statistics on the air quality index (AQI) for the Sorel-Tracy region, in the Saint-Joseph-de-Sorel sector, indicate that in 2020 the air quality was good (53.0% or 194 days), acceptable (44.8% or 164 days), and poor (2.2% or 8 days).

The main sources of noise in the immediate area of the project are the industrial and commercial businesses in the area, particularly the nearby dock (Kildair Service) which receives up to 100 ships per year. The railway, Route 132, Highway 30, and the seaway are also recurrent sources of noise.

The last monitoring of groundwater quality following the dismantling of the thermal power plant and the rehabilitation of the site was conducted in 2018. Among the samples analyzed during the various follow-ups,

an exceedance of the *Resurgence in surface water and infiltration in sewers* (RESIE) criteria for aluminum and copper concentrations was observed only once and pH values in excess of the city of Sorel's standard were observed twice in a single observation well.

The proposed project is located in the northern temperate vegetation zone, deciduous forest subzone, and the sugar maple-bitternut hickory bioclimatic domain. The riparian vegetation is predominantly composed of red ash, trembling aspen, and American elm with a very sparse herbaceous layer. According to the analysis of data from the Centre de données sur le patrimoine naturel du Québec (CDPNQ), three plant species that are likely to be threatened or vulnerable in Quebec but have no status under the *Species at Risk Act* have a "medium" potential of being found in the local study area.

- Silvery-flowered sedge;
- Mühlenberg's sedge;
- Houghton's flatsedge.

A coastal wetland (emergent meadow) is present upstream in the limited study area. No wetlands or bogs are present in the project area. Aquatic grass beds dominated by American wild celery are located upstream of the proposed structure and downstream of the nearby dock. A few small grass beds are located between the two structures. In the local study area, apart from the coastal wetlands (marshes and submerged grass beds) along the shoreline, there is a treed swamp to the south of the property on the east side of Route 132, 300 m from the existing warehouse that is not hydrologically connected to the site project. Within the one-kilometre zone around the project, the only other wetland is located at Des Grèves Regional Park (a complex of wooded bog and treed swamp) that is not hydrologically connected to the site project.

Approximately 200 m upstream of the proposed structure, a larval, fry, and juvenile rearing area was confirmed. Approximately 150 m downstream of the nearby dock (Kildair), a second rearing area for larvae, fry, and juveniles was observed. The characterization highlighted the fact that the immediate area of the intakes provides good cover for juvenile or small fish. The entire local study area is a feeding area and migration corridor for the various fish species encountered. The critical adult foraging habitat for Copper redhorse overlaps the local study area and this species may use nearby grass beds for foraging.

A total of 28 species of fish were caught in the surveys. Of these species, three (3) are listed on Schedule 1 of SARA or have COSEWIC status:

- Channel darter;
- Atlantic sturgeon;
- Lake sturgeon.

The macrobenthos inventories showed that the group of molluscs in the samples with the highest population density was gastropods. No SARA species were found, but two species of precarious status in Quebec were inventoried:

- Eastern elliptio;
- Eastern lampmussel.

Twelve (12) bird species were observed in the project area. Although not observed, barn swallows may frequent the area on an opportunistic basis.

During the summer 2015 inventories, a snapping turtle (SARA Special Concern) was seen between the two pump stations. However, the presence of extensive riprap along a heavily anthropized shoreline severely limits the presence of potential turtle habitat for both basking and egg laying.

No garter snakes were found, either by active search or by the shingle method. The closest occurrence according to the Atlas of Amphibians and Reptiles of Quebec is a garter snake 2 km from the project.

11.2 Exotic invasive species

The following exotic invasive plant and wildlife species were observed during the surveys:

- Round goby (Ichtyofauna);
- Purple loosestrife (flora);
- Common reed (flora);
- Reed canary grass (flora);
- Flowering rush (flora);
- Zebra mussel (macrobenthos).

The project is also located within the range of the quagga mussel.

11.3 Species at Risk

Species at risk listed on Schedule 1 of SARA that have been confirmed to occur within the local study area are:

- Snapping Turtle (Special Concern);
- Peregrine Falcon (Special Concern);
- Barn Swallow (Threatened);
- Channel darter (Special Concern).

Based on a review using the Department of Fisheries and Oceans Canada Aquatic Species at Risk Online Mapping Tool (DFO, 2022) and available habitat, the species at risk that are likely to be present in the study area are:

- Copper Redhorse (Endangered);
- Bridle shiner (Concerned);
- River Redhorse (Special Concern);
- Northern Brook Lamprey (Special Concern);
- Hickorynut (Endangered).

Based on the review for the amphibian and reptile range and habitat inventory conducted in 2021, three species of turtles may opportunistically frequent the local study area:

- Northern map turtle (Special Concern);
- Snapping Turtle (Special Concern);
- Painted turtle (Special Concern).

The little brown myotis, designated as "Endangered" on Schedule 1 of SARA, might use the river's riparian zone to move through the adjacent residual woodlands.

Based on the range analysis of avian species at risk that may overlap the study area, the following species have a low to moderate potential of occurring in the vicinity of the project, but outside of the project area, for nesting, feeding, or both activities:

- Wood thrush: Threatened;
- Evening Grosbeak: Special Concern;
- Barn Swallow: Threatened;
- Chimney Swift: Threatened;
- Canada warbler: Threatened;
- Eastern Woodpecker: Special Concern.

It should be noted that no plant species at risk are likely to be found in the study area based on the available habitats.

12 Financial Support

An application for financial assistance has been submitted to Transport Canada under the "Building Internal Trade Corridors" component of the National Trade Corridors Fund (NTCF). The amount of anticipated assistance is $13,613,684. QSL International Inc. is the applicant for a total project value of $51,264,959.

13 Federal Lands

No federal lands are located within the limited study area. There is no federal land that could be used for the project.

14 Health, social, and economic context

14.1 Social and health context

The project is located in the Montérégie socio-health region (RSS), in the Montérégie-East territorial service network (RTS)[1], in the Pierre-De Saurel local service network (RLS), and in the territory of the CLSC Gaston-Bélanger.

Table 14-1 presents the main social and health indicators for the Montérégie region, where the project is located.

[1] The territorial equivalent of the Centres intégrés de santé et de services sociaux (CISSS) and the Centres intégrés universitaires de santé et de services sociaux (CIUSSS)

Table 14-1 Infant mortality, life expectancy, perceived health, perceived stress and cancer incidence for the Montérégie health region

	Male	Female	Total
Infant mortality (rate per 1000 live births)	4,0	4,2	3,8
Life expectancy (years)	79,2	83,4	81,4
Perceived health, very good or excellent (%)	61,9	57,4	59,6
Perceived mental health, very good or excellent (%)	79,3	74,5	76,9
Perceived life stress (%)	27,0	31,0	29,0
Incidence of cancer (rate per 100 000 people)	486,3	370,5	416,5
Incidence of colon cancer (rate per 100 000 people)	65,1	44,3	53,6
Incidence of lung cancer (rate per 100 000 people)	95,9	55,6	72,3

14.2 Socio-demographic data for the population of Sorel-Tracy

Table 14-2 presents the main socio-demographic data for the population of the Sorel-Tracy census metropolitan area (CMA).

Table 14-2 Socio-demographic data for the Sorel-Tracy CMA

Demographic data	Male	Female	Total
Population 2021	**20 785**	**21 150**	**41 934**
0-14 years (%)	13,2	12,0	12,6
15-64 years old (%)	59,0	55,7	57,3
65-85 years (%)	27,9	32,4	30,2
85 years and older (%)	2,2	4,8	3,5
Average age	47,2	49,9	48,6
Indigenous identity	280	285	570
First Nations (North American Indian)	165	165	330
Métis	80	60	140
Inuk (Inuit)	15	20	35
Graduation (2016)			
No certificate, diploma or degree (%)	9,4	8,3	17,7
High school diploma or equivalency certificate (%)	9,0	9,8	18,8
Apprenticeship or trade school certificate or diploma (%)	15,5	10,3	25,9
Certificate or diploma from a college, CEGEP or other non-university institution (%)	9,8	12,6	22,4
University degree below bachelor's degree (%)	1,0	2,3	3,3
University certificate, diploma or degree at the bachelor's level or higher (%)	5,0	7,0	12,0

Demographic data	Male	Female	Total
Unemployment rate (2016) (%)	**8,7**	**7,2**	**8,0**
Working population	10 140	8 810	18 950
Inactive population	7 050	8 955	16 000
Average total income (2020) ($)	52 900	38 200	45 520
Median total income (2019) ($)	36 800	25 600	31 000
Visible minorities, immigration and mother tongue (2021)	**8,7**	**7,2**	**8,0**
Visible minority	2,2	2,3	2,3
Immigrant status	2,4	2,6	2,5
French	96,3	96,6	96,4
English	1,1	1,0	1,0
Non-official languages	1,6	1,6	1,6

14.3 Socio-demographic data for Indigenous people

Table 14-3 presents the main socio-demographic data available for Indigenous peoples in the vicinity of the study area.

Table 14-3 Socio-demographic data for indigenous peoples

Data	Value
Mohawks (Kanien:keha'ka)	
Members (total)	19 570
Members off reserve	7 912
Members (Kahnawà :ke)	8 602
Members (Ahkwesáhsne [Quebec part])	5 600
Members (Kanehsatà:ke)	1 359
Abenakis (W8banakiak)	
Members (total)	3 638
Median age	38
Single-parent families	27 %
Couples with children	33 %
Couples without children	39 %
No certificate, diploma or degree	27 %
High school diploma or equivalency certificate	15 %
Apprenticeship or trade school certificate or diploma	29 %
Certificate or diploma from a college, CEGEP or other non-university institution	22 %
University certificate, diploma or degree at the bachelor's level or higher	8 %

Data	Value
Median income (2015)	20 928$
Unemployment rate	12 %
Hurons-Wendat	
Members (total)	4 734
Median age	40
Single-parent families	19 %
Couples with children	37 %
Couples without children	44 %
No certificate, diploma or degree	15 %
High school diploma or equivalency certificate	18 %
Apprenticeship or trade school certificate or diploma	19 %
Certificate or diploma from a college, CEGEP or other non-university institution	28 %
University certificate, diploma or degree at the bachelor's level or higher	20 %
Median income (2015)	28 612$
Unemployment rate	6 %

14.4 Social and health data for Indigenous peoples

Kanien:keha'ka

Little data is available on Mohawk populations in Statistics Canada's national surveys and in the Census or the National Household Survey (NHS). However, some data is available on the First Nations Profile administered by Crown-Aboriginal Relations and Northern Affairs Canada. All Mohawk communities provide primary health care services to their members. Social assistance programs as well as housing programs (home construction and repair) are available in each community.

In Kahnawà :ke, the Kahnawàke Shakotiia'takehnhas Community Services (KSCS) oversees the administration of health and social services, including the Kateri Memorial Hospital Center, fire response services, environmental health services, home care, services for youth, elders and special needs clients, and family support. There are several daycare centres located on the reserve.

In Kanehsatà:ke, the Kanesatake Health Centre provides a variety of health and social services to the population of the reserve. These include primary and preventive health care, a maternal health program, a youth program, transportation services for elderly people, preventive health services (diabetes, nutrition, etc.), as well as an environmental and public health follow-up program. The community also has a seniors' residence and a daycare centre.

In Ahkwesáhsne, health and social services are offered on the reserve. Community members have access to programs for families, youth, and elderly people, both in terms of prevention and primary care.

W8banakiak

The community of Odanak has a health center with about twenty professionals who offer various expertises, such as nutrition, psychotherapy, addiction intervention, kinesiology, and several nurses Odanak also has a daycare centre, a family room, a room for elderly people, a library, a community hall, and a public pool. In W8linak, there is a health center, a seniors' residence, a library and a family room. In case of need, the members of these communities can count on the hospital services offered in the large centers located near the villages.

Huron-Wendat

The Marie-Paule-SiouiVincent Health Centre located in Wendake offers a range of health and social services to members of the community. In addition, the community also has a youth centre and a residence for seniors, the Marcel-Sioui Residence. A recreation center is also available.

14.5 Recreational and Tourist Activities

Fishing is a regular activity along the St. Lawrence River and the site is known to be used by the local population for recreational fishing. Recreational boating occurs in front of the proposed facilities. It occurs more intensively near the seaway but boaters still regularly use the facilities of the former Tracy thermal power plant. No launching structures are present in the vicinity of the project.

The City of Sorel-Tracy has received the Vélosympathique - Silver level recognition from Vélo-Québec and is making great efforts and resources to promote cycling throughout its territory. Industrial areas are major trip generators, for example, for employees of companies located in these areas, and it is important for the City to ensure safe active mobility in these areas.

The area's network of off-road vehicle and snowmobile trails avoids the IP Zone area.

14.6 Heritage and archaeology

In the Sorel-Tracy area, there are some high-potential archaeological zones. At the storage area site, a visit by an archaeologist concluded that there was a low probability of discovering archaeological remains.

A mandate was granted to obtain an archaeological potential study covering the entire restricted study area.

15 Impacts and changes to Environmental Components and Health, Social and Economic Conditions of indigenous peoples

The implementation of the project could have an impact on Indigenous peoples, particularly in terms of the practice of traditional activities and natural and cultural heritage, as well as on the health, social and economic conditions of the communities.

Table 15-1 presents a matrix of interrelationships between the sources of potential effects of the project and the environmental, cultural, health, social or economic components of Indigenous peoples.

Table 15-1 Matrix of interrelationships

Source of potential effect	Component						
	Fish and its habitat	Migratory birds	Practice of traditional activities	Natural and cultural heritage	Health conditions	Social conditions	Economic conditions
Installation and presence of the site	X	X	X		X	X	X
Site preparation (clearing, stripping, excavation, earthworks, in-water work)	X	X	X	X			
Construction of temporary and permanent infrastructure and facilities	X	X	X	X	X	X	X
Circulation of vehicles and heavy machinery and use and maintenance of equipment/heavy machinery	X	X	X	X	X	X	X
Terminal Operations	X	X	X		X	X	X
Vessel traffic;	X	X	X		X	X	X
Presence of workers	X	X	X				

15.1 Changes in environmental components

Some changes may occur in the following components:

- Fish and fish habitat:
  - Construction:
    - Increase in turbidity due to suspended solids (SS);
    - Disturbance of ichthyofauna during construction (underwater noise);
    - Potential for release of contaminants from the machinery used.
  - Operation:
    - Disruption by increased shipping;
    - Loss of permanent habitat and/or alteration of fish habitat through pilings and dock right-of-way.
- Migratory birds:
  - Construction and operation:
    - Disturbance of nesting sites for some migratory birds (loss and fragmentation);
    - Disturbance of populations;
    - Risk of collisions or mortality.

The planned site avoids permanent encroachment into the aquatic grass beds. The depth available at the dock makes it possible to avoid dredging during construction. It is not impossible that maintenance dredging (to maintain water depth) may be required during the operational phase around the dock reception barge.

15.2 Impacts on Indigenous Peoples

The project could result in impacts on Indigenous peoples, such as

- Disruption of traditional activities in the area (hunting, fishing, trapping, gathering, etc.);
- Potential loss of places to practise traditional activities (hunting, fishing, trapping, gathering, etc.);
- Risk of collisions/accidents due to increased traffic in the area;
- Increase in the number of vessels or change in vessel routes;
- Disturbance (noise, dust, people present on the site);
- Modification of the natural heritage through the addition of anthropogenic elements in the landscape;
- Modification of the natural heritage through alterations to the physical components of the environment (particularly aquatic);
- Potential damage/waste to cultural heritage (e.g. archaeological remains).

15.3 Changes in the health, social or economic conditions of Indigenous peoples

In terms of health, the changes that could be observed compared to current conditions are :

- Potential effects on human health (air emissions, noise);
- Risk of collisions/accidents due to increased traffic in the area;
- Potential change in surface water quality (spills).

At the social level, the changes that could be observed compared to the current conditions are :

- Modification of hunting, fishing and trapping habits in the territory;
- Change in current family dynamics;
- Change in quality of life.

At the economic level, the changes that could be observed compared to the current conditions are :

- Local and regional economic benefits;
- Job creation;
- Acquisition of goods and services;
- Business opportunities for Indigenous businesses.

16 Greenhouse gas emissions

The new terminal would eliminate the waiting time for bulk carriers at sea (currently 140 hours per stopover on average), while the waiting time for cargo ships would be reduced from 148 hours to 48 hours per stopover. Currently, the St. Joseph terminal handles approximately 40 cargo ships (440,000 t) and 10 bulk carriers (110,000 t) annually, for a total of 550,000 t to be handled. Once the project is implemented, the Saint-Joseph terminal will be able to handle cargo ships at a rate of 535,000 t/year, while the St. Lawrence terminal will have the capacity to handle approximately 440,000 t, with priority for bulk.

The construction phase is expected to generate 1,284 t.eq.CO_2 over a period of 16 months. The project will not involve any change in land use and, therefore, will not have a direct impact on the surrounding carbon sinks.

During the operation phase, a net reduction in GHG emissions of 2,227 t.eq.CO_2 per year is forecasted, taking into account the emissions avoided at the Saint-Joseph sector terminal currently (6,969 t.eq.CO2) and the emissions avoided from unloading steel at the QSL terminal instead of other terminals in Quebec (1,270 t.eq.CO2) which will be replaced by the combined emissions of the two terminals (6,005 t.eq.CO2).

The project aims to improve the fluidity of the maritime transport chain, which is recognized as the most environmentally friendly mode of transport in terms of the quantity of consumables/ton transported. The project will maintain a level of GHG emissions that is about 1,000 tonnes lower than estimated today, despite the possible increase of up to 70% in the number of ships on an annual basis, given the reduction in the waiting time for ships offshore, which generates a large amount of GHG. Thus, the operation of the project is not likely to generate additional GHG emissions at the terminal.

17 Waste and Emissions

QSL has an emergency response plan for each of its terminals. An emergency measures plan will be developed specifically for dockside operations in the St. Lawrence sector.

Wastes and emissions to air, water and land that are likely to be generated during all phases of the project are as follows

- Wastewater;
- Residual materials :
  - Building materials (wood, metal, various packaging)
- Residual hazardous materials :
  - Used oil and grease from machinery;
  - Oil filters;
  - Solvents used for cleaning mechanical parts;
  - Gasoline;
  - Diesel.
- Contaminated soil and water (spills);
- Air emissions (GHG, dust);
- Noise.

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