SNC·LAVALIN

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

Summary of the initial project description (Part F)

QSL International Ltd.

Engineering Services

QSL

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Part F: 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.

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2 Project Justification

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 wait time). The new port terminal would also reduce truck traffic in the community of Saint-Joseph-de-Sorel, 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, reducing delivery times, which will also result in lower 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 port terminal would operate in the Sorel-Tracy industrial port zone (IP zone) and is an integral part of the Quebec government's maritime strategy, which aims to "provide a favourable business environment for private

investment in the manufacturing, transportation and logistics sectors" by providing "more direct access to inputs and adequate distribution of goods to North American and international markets".

At the new port terminal, the reception and handling of various fertilizers, road salt, 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 dock in the Sorel region could attract new investors and will support the region's ability to attract and sustain investment in the marine sector. Significant additional economic benefits are therefore foreseeable for the region.

Overall, the project will reduce GHG emissions by reducing vessel wait time at sea and reducing trucking between the existing Saint-Joseph port terminal and the warehouse several kilometres away.

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 1.

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 outdoor open storage area (17,500 m^2);
- The construction of a floating dock (floating barge) with a pile foundation with the capacity to receive ships of more than 25,000 DWT;
- The construction of two dolphins consisting of 12 pilings;
- The construction of a concrete pile where a spinnaker pole (horizontal mobile beam for mooring boats) will be fixed;
- The construction of an electric conveyor on the cross section of the dock for the transport of bulk materials from the ships to the warehouse and from the warehouse to the ships;

The use of the existing water intakes of the old thermal power plant to secure the transhipment dock and moor the boats at the dock.

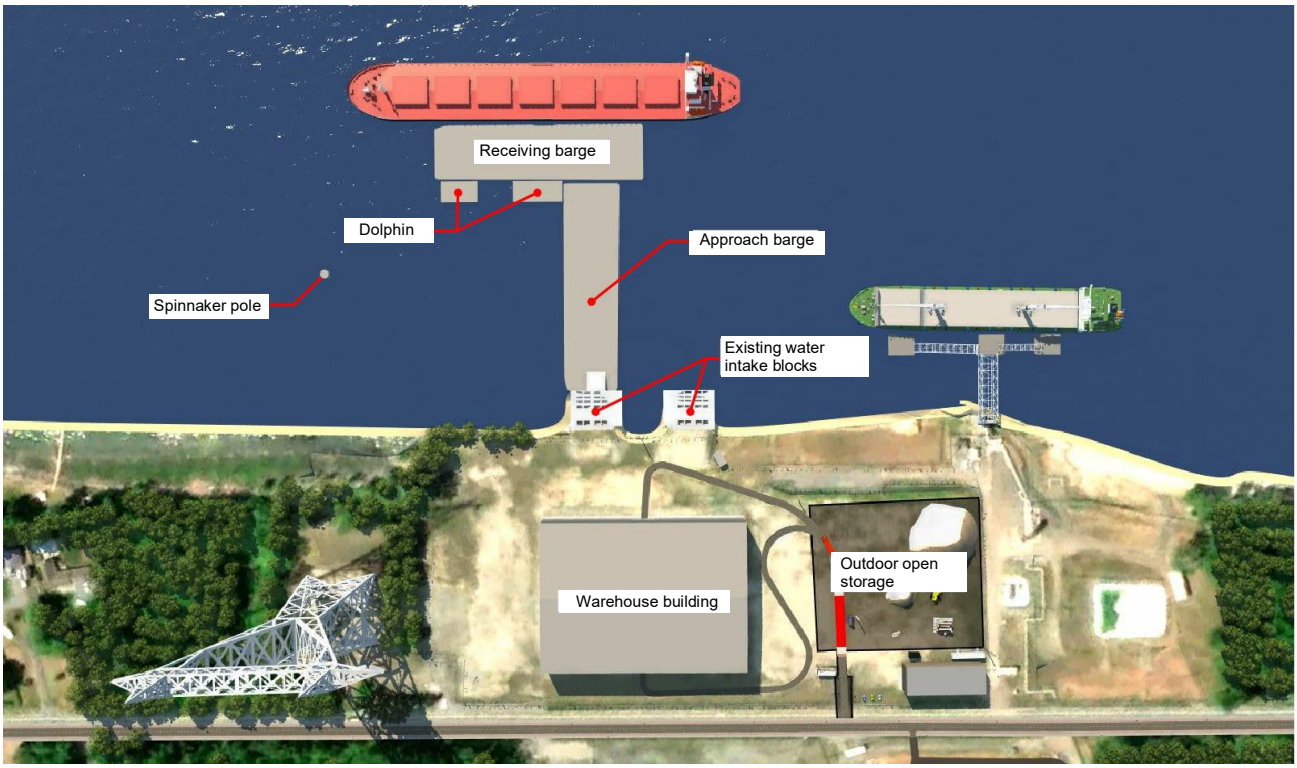


Figure 1 **Conceptual drawing of the new floating dock on piles (plan view)**

3.2 Potential related infrastructures

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 transfer tower and an electric conveyor to ensure the passage of bulk goods over Route 132;
- The construction of a bypass of the local network with rapid access to exit 135 of Highway 30.

3.3 Main operating activities

Planned activities are limited to unloading vessels. Bulk commodities are the primary focus of future operations, although some steel and oversized parts may also be handled. There is no deadline for site operations. This means that no activities related to a closure/decommissioning of the site are being considered.

3.4 Maximum project capacity and size

Ultimately, the dock, which is approximately 145 m long, could accommodate 35 bulk carriers per year for a total unloaded tonnage of approximately 440,000 MT/year. Depending on the evolution of the ice cover, the barges could be removed in winter and the dock could operate 9 months a year.

Such activities could generate 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 experienced with a dock operating at maximum capacity.

3.5 Schedule of major activies

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

Table 1 Implementation Schedule

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	

Activities	Schedule
Start of construction	Spring 2025
End of construction	2027*

* To be confirmed based on the in-water blackout period

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

It should be noted that due to the orientation and the desire to develop the territory of the City of Sorel-Tracy, as well as geographical and geotechnical constraints and the availability of the already rehabilitated industrial site, other sites were not considered for the project.

The following potential alternatives are under consideration:

- The construction of a hybrid quay with a floating receiving barge and a fixed pile deck for the approach section.

5 Applicable Provisions

Since 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, the Project is 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 abandonment of a new marine terminal designed to handle ships larger than 25 000 DWT.

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) (MELCC)
- 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) (MELCC and MFFP)
- Under the Wildlife Conservation and Enhancement Act (c. C-61.1) (MFFP)

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

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.

To date, several local environmental and socio-economic groups were also invited to invitational meetings. The following Indigenous and non-Indigenous organizations and authorities 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;
- Mohawk Council of Kahnawake (MCK).

A dialogue have been engaged with representatives of these Indigenous communities:

- Mohawks of Kahnawake;
- Mohawks of Kanesatake;
- Mohawks of Akwesasne;
- Abenakis of Odanak;
- Abenakis of Wôlinak;
- Huron-Wendat of Wendake.

QSL will involve the members of the Grand Council of the Waban-Aki Nation (GCNWA) more closely since the project is located on their Nitassinan. In particular, they will be involved in carrying out additional field work as

part of the environmental impact study, in conducting a traditional use and occupation study and in conducting an archaeological potential study.

At this stage of the consultation process the main issues and comments raised are as follows: navigation safety and the proximity of the neighbouring dock, air and water quality (particulate emissions and risk of accidental spills during transshipment), noise, socio-economic aspects (job creation, local partnerships), wildlife (protection of endangered species, protection of fish, impact on the seabed), and increase in marine traffic to Lake Saint-Pierre.

A future engagement plan will be prepared as part of the impact study in collaboration with the various communities identified.

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 (11.0 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 centroid of the warehouse: 45°59'47.53 "N, 73°10'19.83 "W

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:

- Mohawks of Kahnawake (73 km);
- Mohawks of Kanesatake (87 km);
- Mohawks of Akwesasne (142 km);
- The Abenakis of Odanak (25 km);
- The Abenakis of Wôlinak (67 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

9.1 Available environmental studies

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
- Berthing simulations at the proposed dock and at the Kildair dock;

Additional studies are planned and include an ice and current study, a phase I environmental characterization study, an air quality and atmosphere study, a noise study and an archaeological potential study.

9.2 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, Aboriginal 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 is being conducted by a team of researchers from Laval University, in collaboration with the Government of Canada, the Government of Quebec, First Nations, 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 exposed to stressful effects. It is also indicated that the entire navigation channel between Trois-Rivières and Montreal, including Lake Saint-Pierre, is particularly 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

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 semi-diurnal 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).

The granulometry of the sediment in the vicinity of the marine infrastructures is mainly composed of sand accompanied by silt. A clayey 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. Furthermore, 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 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 Québec but have no status under the *Species at Risk Act* have a "medium" potential of being found in the local study area.

- Hay sedge;
- Mühlenberg's sedge;
- Houghton's sedge.

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.

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 the species may use the 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.

11.2 Invasive exotic species

The following invasive exotic 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).

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 (Threatened);
- Barn Swallow (Threatened);
- Channel darter (Threatened).

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 (Concerned).

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.

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 Sociodemographic data for the population of Sorel-Tracy

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

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

Demographic data	Value
Census 2021	
Population	41 934 people
Population (men)	20 785 people
Population (women)	21 150 people
Population (0-14 years)	12,6%
15-64 years old	57,3%
65-85 years	30,2 %
85 years and older	3,5 %
Census 2016	
Residents of Aboriginal origin	455 people
No certificate, diploma or degree	17,7 %
High school diploma or equivalency certificate	18,8 %

Demographic data	Value
Apprenticeship or trade school certificate or diploma	25,9 %
Certificate or diploma from a college, CEGEP or other non-university institution	22,4 %
University degree below bachelor's degree	3,3 %
University certificate, diploma or degree at the bachelor's level or higher	12 %
Unemployment rate	8 %
Working population	18 950 people
Inactive population	16 000 people
Average total income	38 834 $
Average total income (men)	47 669 $
Average total income (women)	30 153 $

14.2 Sociodemographic data for Indigenous people

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

Table 3 Socio-demographic data for indigenous peoples

Data	Value
Mohawks	
Members (total)	16 200
Members off reserve	2 700
Members (Kahnawake)	7 293
Members (Akwesasne [Quebec part])	5 600
Members (Kanesatake)	1 388
Abenakis	
Members (total)	465
Median age	38 ans
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)	1 580
Median age	40 ans
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 %

14.3 Social and health data for Indigenous peoples

Mohawks

Little data is available on Mohawk populations in Statistics Canada's national surveys and in the Census or the National Household Survey (NHS) (Statistics Canada, 2006; 2011). 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 Kahnawake, 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 (KSCS, 2022). There are several daycare centres located on the reserve.

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

Grand Council of the Waban-Aki Nation (GCNWA)

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 (Conseil des Abénakis d'Odanak, 2022). Odanak also has a daycare centre, a family room, a room for elders, a library, a community hall, and a public pool (GCNWA, 2022). In Wôlinak, 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 of Wendake

The Marie-Paule-SiouiVincent Health Centre located in Wendake offers a range of health and social services to members of the community (Marie-Paule-SiouiVincent Health Centre, 2022. In addition, the community also has a youth centre and a residence for seniors, the Marcel-Sioui Residence. A recreation center is also available.

14.4 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.

Although Route 132 has a wide enough shoulder to be cyclable, the city of Sorel-Tracy's network of bicycle paths avoids the IP Zone sector. The same is true for the network of mountain bike and snowmobile trails in the region.

14.5 Heritage and archaeology

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

The riparian, underwater, and terrestrial archaeological potential outside the immediate perimeter of the power plant has not been examined and a mandate will soon be granted to obtain an archaeological potential study covering the entire 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.

The following table 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 4 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 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 practice 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 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, which will be replaced by the combined emissions of the two terminals.

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.

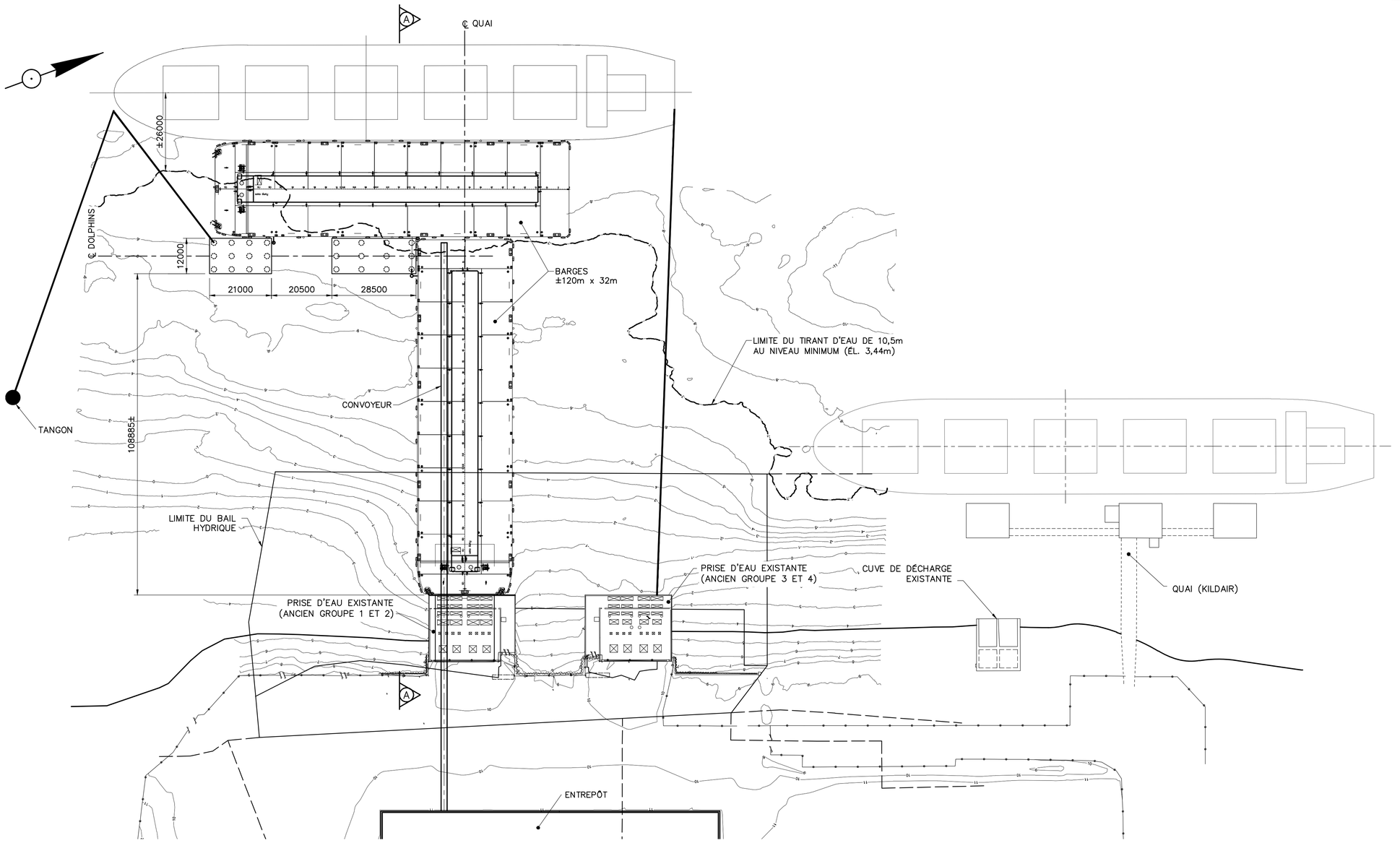
17 Waste and Emissions

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

- 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.

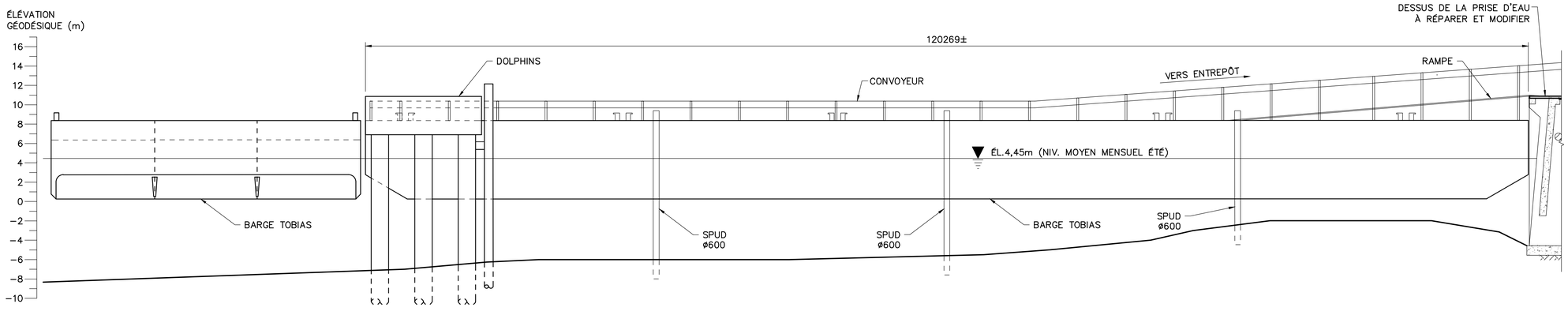
Appendix 1

Plans



VUE EN PLAN

ÉCH. 1:750



COUPE A−A

ÉCH. 1:250

PROPRIÉTAIRE:

QSL

PROJET:

ZIP ST-LAURENT
SOREL-TRACY
AIRE D'ENTREPOSAGE

CONSULTANTS

GÉRANT DE PROJET: **François Paradis, ing. Ph. D.**

INGÉNIERIE: **François Paradis, ing. Ph. D.**
Camille Gélinas, ing.
Jean Morin, tech. princ.

INGÉNIERIE: Q213012A

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T: 418-623-3373
300–1145, boul. Lebourgneuf, Québec QC G2K 2K8 CANADA

LÉGENDE

NOTES:
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SCEAU:

Signature du chargé de projet: _____

No	DESCRIPTION	PAR	DATE
B	PRÉLIMINAIRE – RÉV. 1	F.P.	2022-07-18
A	PRÉLIMINAIRE	F.P.	2022-04-22

REVISIONS

TITRE:

QUAI
OPTION A AVEC BARGES
1 DE 2

CONCU: François Paradis, ing.	VÉRIFIÉ:
DESSINÉ: Alex Meunier, tech.	APPROUVÉ:
No. PROJET:	DATE: 2022–04–22 / ÉCHELLE: INDIQUÉE
No. DESSIN CONSULTANT: Q213012A–Quai–AM–2022–06–27_Option A–2–BARGE.dwg	
No. DESSIN: 00000-02-02-001	REVISION: B

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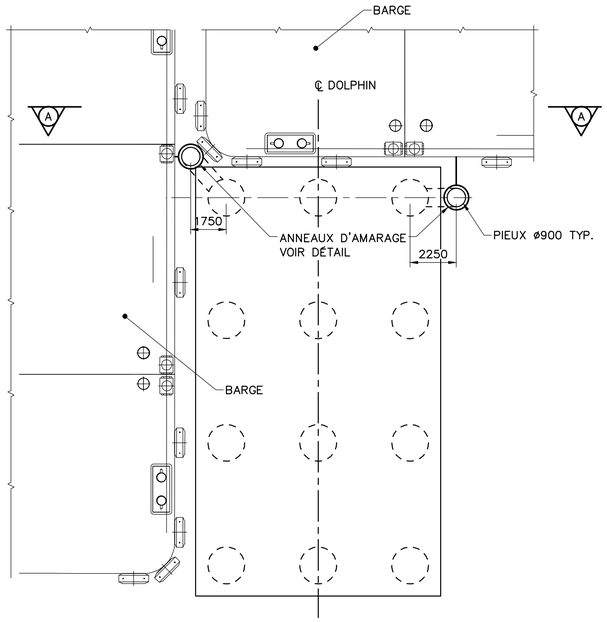
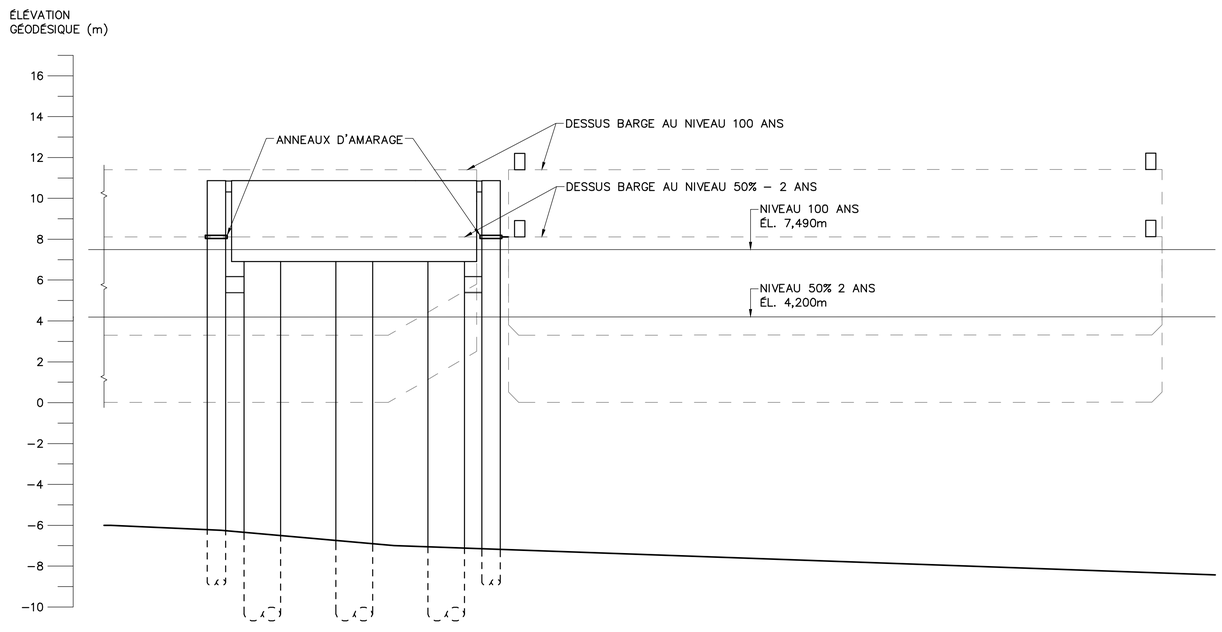
CIVIL - 01



VUE EN PLAN – SYSTÈME D'ATTACHE

ÉCH. 1:150



ÉLÉVATION – SYSTÈME D'ATTACHE

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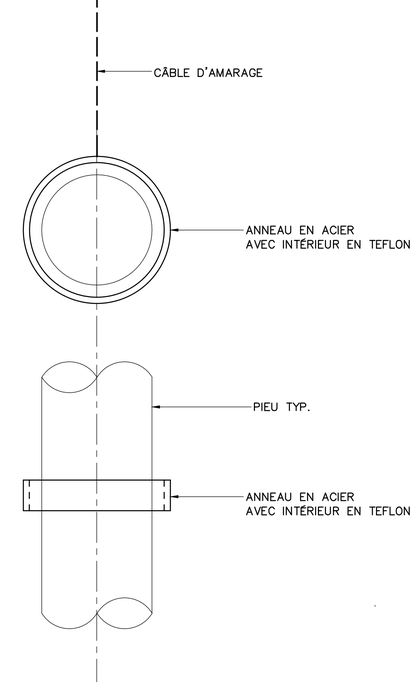

DÉTAIL – ANNEAU D'AMARAGE

ÉCH. 1:25

PROPRIÉTAIRE:

QSL

PROJET:

ZIP ST-LAURENT
SOREL-TRACY
AIRE D'ENTREPOSAGE

CONSULTANTS

GÉRANT DE PROJET: **François Paradis, ing. Ph. D.**

INGÉNIERIE: **François Paradis, ing. Ph. D.**
Camille Gélinas, ing.
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INGÉNIERIE: Q213012A

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SCEAU:

Signature du chargé de projet:

No	DESCRIPTION	PAR	DATE
B	PRÉLIMINAIRE – RÉV. 1	F.P.	2022-07-18
A	PRÉLIMINAIRE	F.P.	2022-04-22

REVISIONS

TITRE:

QUAI
OPTION A AVEC BARGES
2 DE 2

CONCU: François Paradis, ing.	VÉRIFIÉ:
DESSINÉ: Alex Meunier, tech.	APPROUVÉ:
No. PROJET:	DATE: 2022–04–22 / ÉCHELLE: INDIQUÉE
No. DESSIN CONSULTANT: Q213012A–Quai–AM–2022–06–27_Option A–2–BARGE.dwg	
No. DESSIN: 00000-02-02-001	REVISION: B

FORMAT A1 594 X 841

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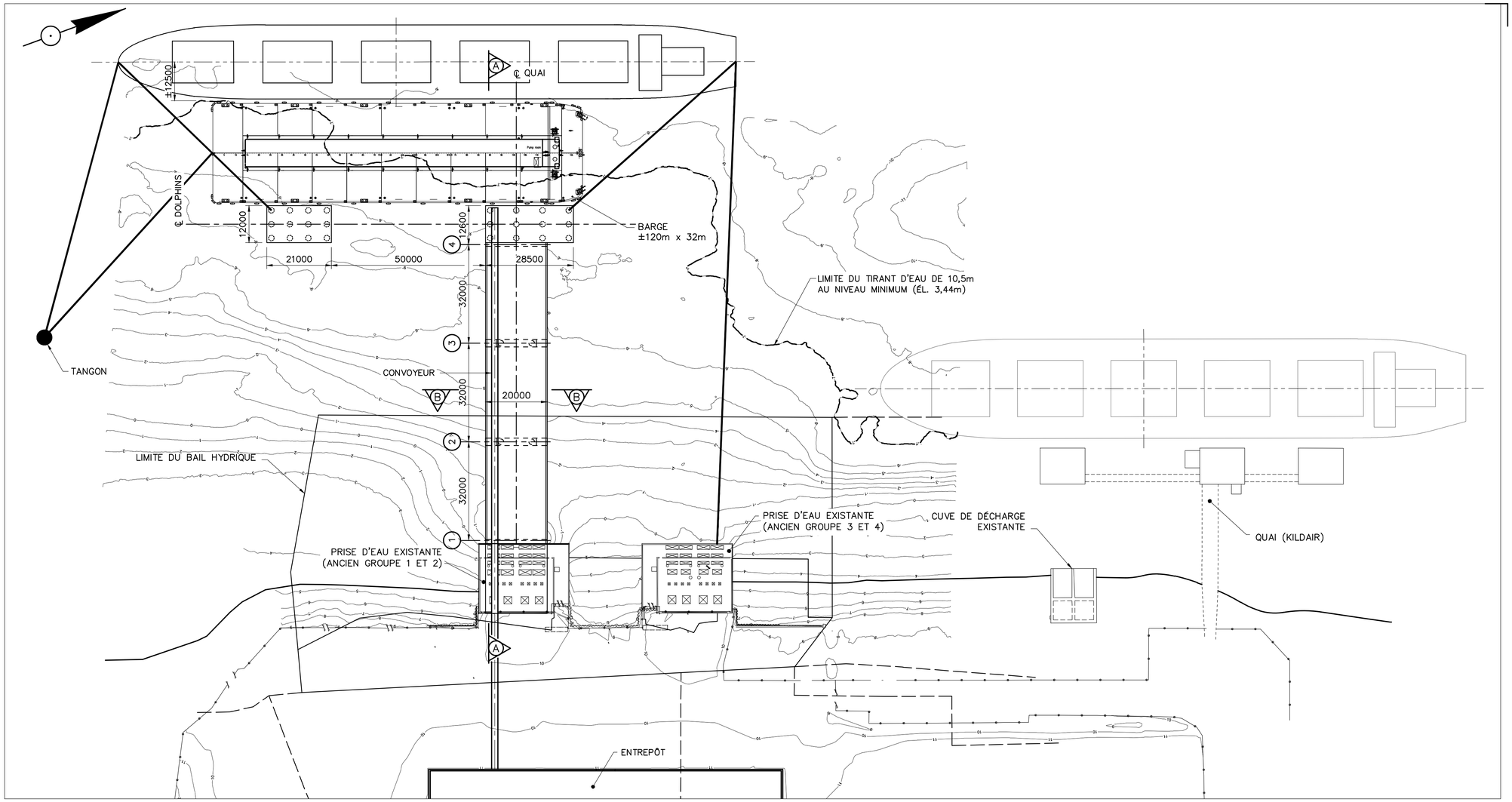

VUE EN PLAN
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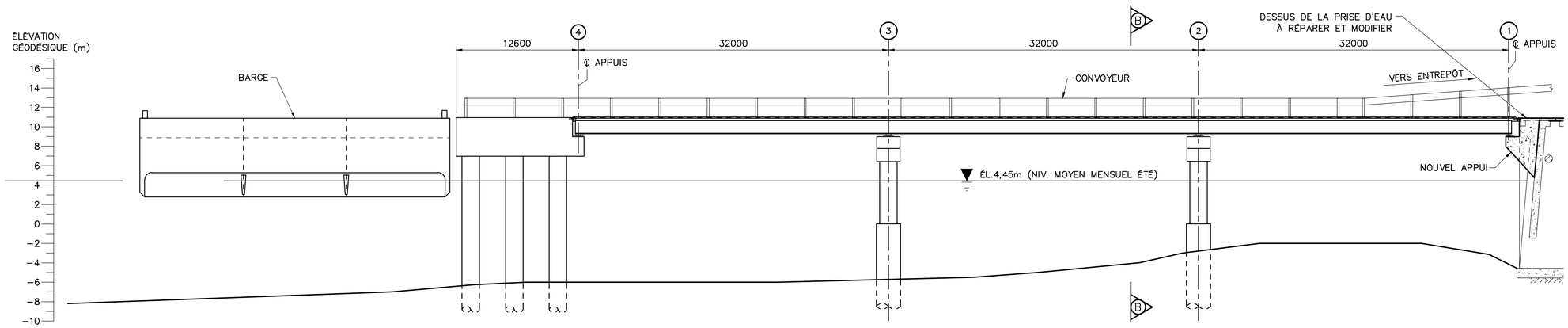

COUPE A–A
ÉCH. 1:250

PROPRIÉTAIRE:

QSL

PROJET:

ZIP ST-LAURENT
SOREL-TRACY
AIRE D'ENTREPOSAGE

CONSULTANTS

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SCEAU:

Signature du chargé de projet:

No	DESCRIPTION	PAR	DATE
B	PRÉLIMINAIRE – RÉV. 1	F.P.	2022-07-18
A	PRÉLIMINAIRE	F.P.	2022-04-22

REVISIONS

TITRE:

QUAI - OPTION B
PONT AVEC BARGE
1 DE 2

CONCU: François Paradis, ing.	VÉRIFIÉ:
DESSINÉ: Alex Meunier, tech.	APPROUVÉ:
No. PROJET:	DATE: 2022-04-22 / ÉCHELLE: INDIQUÉE
No. DESSIN CONSULTANT: Q213012A–Quai–AM–2022–05–20_Option B–BARGE.dwg	
No. DESSIN: 00000-01-02-002	REVISION: B

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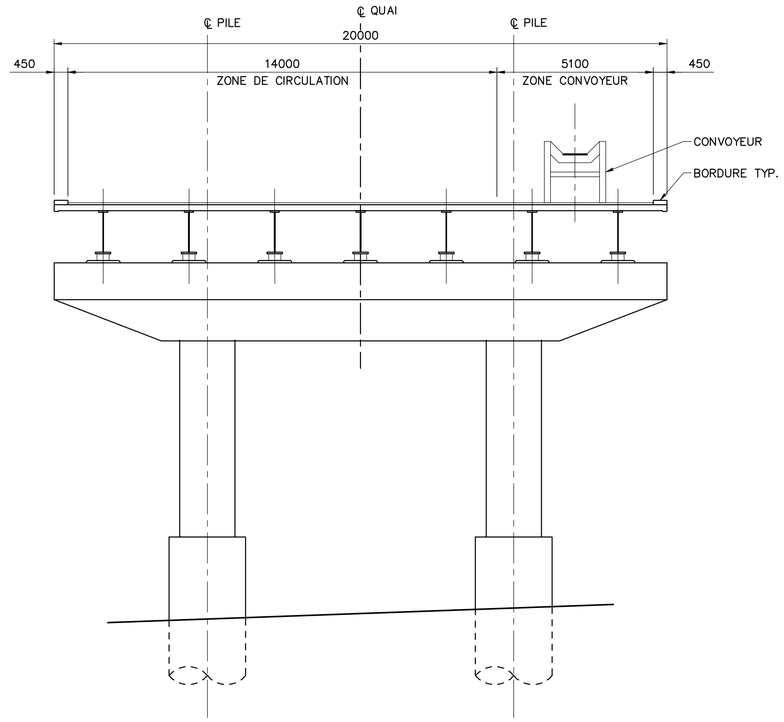

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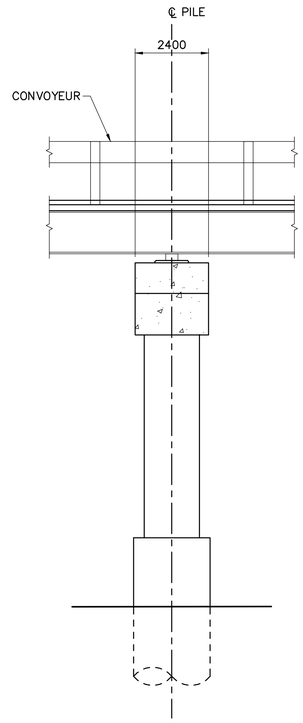

ÉLÉVATION

COUPE B–B

ÉCH. 1:100

PROPRIÉTAIRE:

QSL

PROJET:

ZIP ST-LAURENT
SOREL-TRACY
AIRE D'ENTREPOSAGE

CONSULTANTS

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INGÉNIERIE: **François Paradis, ing. Ph. D.**
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Jean Morin, tech. princ.

INGÉNIERIE: Q213012A

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Signature du chargé de projet: _____

No	DESCRIPTION	PAR	DATE
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A	PRÉLIMINAIRE	F.P.	2022-04-22

REVISIONS

TITRE:

QUAI - OPTION B
PONT AVEC BARGE
2 DE 2

CONCU: François Paradis, ing.	VÉRIFIÉ:
DESSINÉ: Alex Meunier, tech.	APPROUVÉ:
No. PROJET:	DATE: 2022–04–22 / ÉCHELLE: INDIQUÉE
No. DESSIN CONSULTANT: Q213012A–Quai–AM–2022–05–20_Option B–BARGE.dwg	
No. DESSIN: 00000-01-02-003	REVISION: B

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