SUMMARY – Project Description
Under the Canadian Environmental Assessment Act

TIMISKAMING DAM-BRIDGE OF QUEBEC REPLACEMENT PROJECT

PSPC Reference: R.073116

Tetra Tech Reference: 32760TT (60ET)

rev 1b - May 2018

Services publics et Approvisionnement Canada | Public Services and Procurement Canada

GENERAL

1. PROJECT CONTEXT

The replacement of the Quebec Dam (bridge), which is part of the Timiskaming Dam Complex, crosses the Ottawa River at the border between the provinces of Quebec and Ontario, on Route 101 in the city of Témiscaming, which becomes Highway 63 in Ontario.

The project consists in building a new structure approximately 25 meters downstream of the existing dam (bridge) and then to demolish the old structure. The characteristics of the new dam/bridge will be identical to that of the current structure.

Project name: Replacement of the Quebec Dam

2. PROPONENT'S CONTACT INFORMATION

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Person in charge of the project:

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The commission for the evaluation of environmental effects of the project was awarded to Tetra Tech:

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3. CONSULTATIONS WITH THE PUBLIC AND OTHER GROUPS

Consultations with the Public and Other Public Bodies

The proponents of the project spoke with various local stakeholders, such as the Municipality of Témiscaming, the Regional County Municipality and the management of the Rayonier Advanced Materials Pulp and paper Mill, to inform them of the project, planning and schedules.

The proponents of the project are in contact with the authorities that may be involved at the federal level (Fisheries and Oceans Canada, Transportation Canada, Environment and Climate Change Canada), the provincial level ("Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques" or MDDELCC, "Ministère des transports, de la Mobilité durable et de l'Électrification des transports" or MTMDET, the "Ministère de l'Énergie et des Ressources Naturelles" or MERN, the "Ministère des Forêts, de la Faune et des Parcs" or MFFP, (the Quebec government authorities on the environment, transportation, energy and natural resources, and forests, fauna and parks respectively), and the Ontario Ministry of Transportation) and the municipal level.

A public consultation took place on June 22nd, 2017 in the municipality of Témiscaming, during which the public could make enquiries and give opinions on the project. The main concerns that arose related to the management of the water levels and eventual regional economic impacts.

There were no public consultations at the regional level, but publications in several local papers and social medias, as well as on the PSPC's internet site, provided information about the project.

Consultations with the First Nations

In April and May of 2017, letters were sent to 36 First Nation communities to provide them with information on the project and give them the opportunity to communicate their concerns regarding the project and how it could impact their rights, whether potential or acquired.

Following this mailing, only three responses were received. One of the responses came from Algonquins of Ontario, who were interested in the archaeological studies in progress. Another came from the Wasauksing First Nation, who wished to be kept informed of the project. The third came from the Mississauga First Nation of Scugog Island, who stated that the project is not under their treaties.

Meetings with representatives of the Algonquins of Ontario, the Wolf Lake First Nation and the Kebaowek First Nation took place in July and October of 2017. An agreement with members of the Algonquins of Ontario allowed the latter to participate in the archaeological work and in the fish census of 2017. As of February 2018, any understanding has been closed with the Wolf Lake First Nation and a letter of intent was sent by the Kebaowek First Nation regarding an understanding with the PSPC.

Since the first contact with the various communities, frequent communication has been maintained, particularly with the Algonquins of Ontario, with whom meetings take place every two months.

One of the main points raised by the First Nations pertains to fish management during construction, mainly during the dewatering of the river and the installation of the cofferdam.

4. OTHER REGULATORY REQUIREMENTS

In terms of encroachment in fish habitat, an authorisation will be required at the federal level under paragraph 35.2 of the *Fisheries Act* (R.S.C. (1985), c. F-14). The approval of Transport Canada under the *Navigation Protection Act* (R.S.C. (1985), c. N-22) will also be required.

At the provincial level, the project is not subjected to an environmental assessment under the Ontario *Environmental Assessment Act* (R.S.O. 1990, c. E.18).

PSPC received a communication from the Ministère du Développement durable, de l'Environnement et de la Lutte aux changements climatiques du Québec (MDDELCC) dated July 31, 2017 to the effect that the project may be subjected to an environmental impact assessment

under the Quebec *Environment Quality Act*. Discussions regarding this assessment are in progress.

Prior to construction, provincial permits, authorisations and approvals from authorities such as the MDDELCC, the "Ministère des Forêts, de la Faune et des Parcs" or MFFP (the Quebec government authority on forests, fauna and parks) could be required, as well as from Ontario's Ministry of Natural Resources and Forestry (MNRF) and Ministry of the Environment and Climate Change (MOECC).

4.1 Description of the Environmental Studies

The area has not been the subject of regional environmental studies.

An Environmental Effects Evaluation Report has been realised in 2014 in the context of the replacement of the Ontario Dam and under Article 67 of the *Canadian Environmental Assessment Act* (2012).

PROJECT INFORMATION

5. CONTEXT AND OBJECTIVES

The Timiskaming Dam Complex, located on the Ottawa River downstream of Lake Timiskaming, is an infrastructure that regulates the watershed's water level to ensure the supply of water to the hydroelectric facilities located further down the river.

The dams (bridges) consist of decks supporting roadways that connect the provinces of Ontario and Quebec and link the cities of Témiscaming, in Quebec, and Thorne (and eventually North Bay) in Ontario.

The two dams/bridges are separated by "Île Long Sault", an island in the middle of the Ottawa River. The Ontario Dam/Bridge was rebuilt in 2014. As the service life of the Quebec Dam is coming to an end, PSPC decided to replace the structure.

The project therefore consists in rebuilding the Quebec Dam/Bridge to continue managing the water levels in Lake Timiskaming in a safe and sustainable manner over time.

The construction of the new structure will take place over a period of 30 months, beginning in the spring of 2019 or 2020 based on the end of the environmental assessment. The objective is to maintain road traffic between the two provinces and avoid affecting the control of water levels in the lake and river.

6. ARTICLE OF THE SCHEDULE TO THE REGULATIONS DESIGNATING PHYSICAL ACTIVITIES APPLICABLE TO THE PROJECT

The replacement of the Quebec Dam is subjected to a preliminary assessment under Article 28(a) of the *Regulations designating Physical Activities,* as stated below:

"The construction, operation, decommissioning and abandonment of a new international or interprovincial bridge or tunnel…"

7. STRUCTURES ASSOCIATED WITH THE PROJECT

Existing Dam/Bridge

The existing dam/bridge consists of nine reinforced concrete piles and two abutments, which form ten bays. The existing dam/bridge is 74.7 meters long between the abutment faces.

Wood stop logs are added to or removed from the bays to close or open the dam/bridge and control the flow of water from Lake Timiskaming to the Ottawa River. The stop logs are handled with a hydraulic crane designed for this very purpose.

The dam/bridge also comprises a deck that supports a two-lane roadway, which allows traffic between the provinces of Quebec and Ontario (Route 101 and Route 63). In addition to vehicular traffic, the bridge's deck includes a sidewalk for pedestrian traffic and a platform to handle the stop logs.

Four pipes have been incorporated in the sidewalk to run telephone, electrical cables and wires. A natural gas pipe 200 mm in diameter has been installed along the downstream edge of the dam/bridge. Four street lamps are located upstream of the roadway to light the dam/bridge.

It is to be noted that PSPC owns four service buildings on "Île Long Sault". The waste water treatment system consists of septic tanks and seeping fields. During construction, seeping fields will be relocated and the waste water from the septic tanks will be pumped and treated at a duly authorized water treatment facility during construction.

Projected Dam/Bridge

The new structure will be built approximately 25 meters downstream of the existing dam/bridge. Its characteristics will be identical to that of the existing structure, i.e. the structure will regulate water and will not generate electrical power. Its deck will support a two-lane roadway connecting the provinces of Quebec and Ontario.

From a technical standpoint, the new structure will be approximately 74.7 meters long and include ten bays, of which five will be equipped with sluice gates. The other five will be equipped with stop logs.

The deck will support a two-lane roadway and a sidewalk. Based on the information available, the number of lanes is sufficient to ensure traffic flow without causing congestion.

The natural gas pipe and the other utilities pipes (to run telephone and electrical cables) will be reinstalled on the new structure.

Finally, a new fishway will be added to allow fish to pass from the downstream to the upstream of the structure. This fish passage is approximately 140 meters long and will be located on "Île Long Sault".

8. PERFORMANCE

The ultimate objective of the project is to rebuild the Quebec Dam/Bridge without modifying its performance characteristics. Therefore, the structure will continue to regulate water levels without hydro-power generating features.

The dam/bridge will still be operated in conjunction with the Ontario Dam in a water regulating context.

The main difference between the new and the existing dam/bridge is the installation of sluice gates in five out of ten bays. The other five bays will be equipped with stop logs, like the existing structure. This modification will improve responses in terms of management and operation should the water level change quickly.

As for the roadway, its carrying capacity will remain identical to that of the existing structure, i.e. it remains single carriage way with one lane for each direction.

9. PROJECT ACTIVITIES

Project Phases

Although the construction details are not available at this stage of the project, the main activities associated with the various project phases will include site organization, the construction of the new dam/bridge, the relocation of the road, the construction of a fish passage, the demolition of the old dam/bridge and site demobilization.

In addition to the preparatory phase, which consists of organizing the construction site area, construction will take place in four phases. The main tasks in each phase are listed below:

Phase 1 (July to December 2020)

- Excavation of the fish passage downstream;
- Construction of the downstream cofferdam to allow construction on a dry river bed;
- Backfilling of the depression caused by erosion downstream of the existing apron;
- Partial demolition of the existing apron (bays 1 to 10)
- Reconstruction of the apron (bay 1 to 10)
- Construction of a new apron
- Construction of piles 6 to 10, of the abutment on the right shore and of retaining walls on the right and left shores
- Installation of sheet piles at pile 6 and downstream of the apron

Phase 2 (December 2020 to August 2021)

- Removal of the downstream cofferdam
- Reopening of bays 6 to 10
- Construction of piles 2 to 5 and of the abutment on the left shore
- Construction of the bridge's aprons and of bays 1 to 10.
- Construction of sidewalks and installation of guardrails and street lamps
- Construction of the fish passage
- Modification to the road layout
- Relocation of the natural gas pipe
- Paving of the roadway and connections, road marking

Phase 3 (August to December 2021)

- Reopening of the road
- Construction of the service building and of the slab for stop log storage
- Construction of the fish passage upstream
- Installation of the sluice gates and hoists
- Removal of the sheet piles on the apron

Phase 4 (January to September 2022)

- Reopening of bays 1 to 5
- Installation of the hydraulic crane for stoplogs handling
- Tests in water
- Demolition of the old dam/bridge

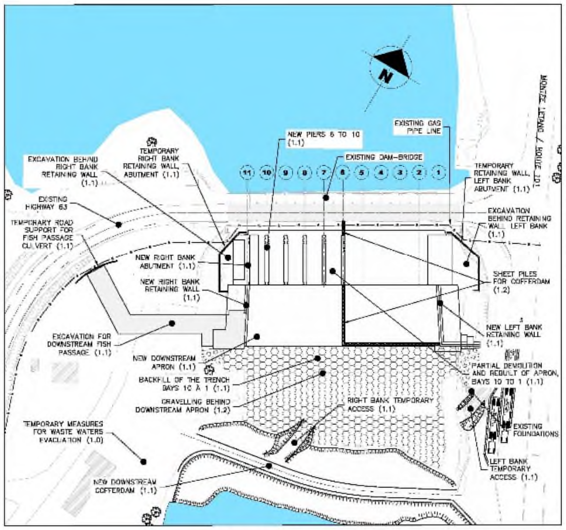
The method for dismantling the existing dam/bridge will be defined by the General Contractor. This method could include the following main steps:

- The installation of turbidity curtains downstream and upstream of the existing structure;
- Drilling piles starting from the deck down to the piles' full depth;
- The dismantling and removal of all metal elements;
- The removal of the pavement and its disposal at a waste valuation or disposal site;
- The cutting and removal of the deck starting from pile #6 and moving toward the east and west abutments;
- The blasting of pile #6;
- The removal of the debris using a long reach excavator;
- The blasting of the other piles starting from the middle of the structure and moving toward the east and west abutment, as well as the removal of the blasting debris;
- Sorting the debris to separate concrete and steel frame elements from the waste;
- Final construction and site restoration activities.

The method will have to be validated and approved by the construction management team.

After the construction of the new dam/bridge, a maintenance program will be implemented throughout the operation of the infrastructures. PSPC will manage the work related to the structure itself, whereas the MTMDET and the Ontario Ministry of Transportation will be responsible for road maintenance.

The following drawing shows the project phases.



PHASE 1 – PLAN VIEW

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PHASE 1.0

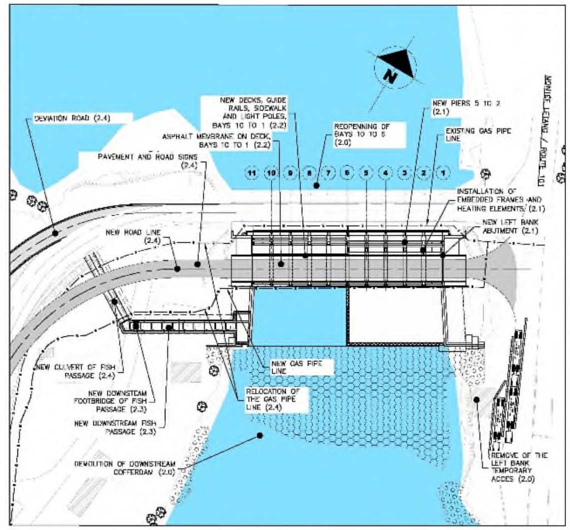
- MOBILIZATION AND CONSTRUCTION OF TEMPORARY SITE FACILITIES
- TEMPORARY MEASURES FOR WASTE WATERS EVACUATION

PHASE 1.1

- TEMPORARY RETAINING WALLS FOR RIGHT AND LEFT BANK ABUTMENTS
- TEMPORARY ROAD SUPPORT FOR FISH PASSAGE CULVERT
- EXCAVATION BEHIND RETAINING WALL
- EXCAVATION FOR DOWNSTREAM FISH PASSAGE
- DOWNSTREAM COFFERDAM AND TEMPORARY ACCESS
- BACKFILL OF THE TRENCH DOWNSTREAM OF THE APRON
- PARTIAL DEMOLITION OF APRON, BAYS 10 TO 1
- REBUILT OF APRON, BAYS 10 TO 1
- CONSTRUCTION OF THE NEW DOWNSTREAM APRON
- CONSTRUCTION OF PIERS 6 TO 10 WITH EMBEDDED FRAMES, THE RIGHT ABUTMENT WITH RETAINING WALLS

PHASE 1.2

- SHEET PILES FOR COFFERDAM PHASE 2
- GRAVELLING BEHIND DOWNSTREAM APRON
- DRY TESTS WITH STOPLOGS ON BAYS 6 TO 10



PHASE 2 – PLAN VIEW

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PHASE 2.0

- REMOVE OF THE LEFT BANK TEMPORARY ACCES
- DEMOLITION OF DOWNSTREAM COFFERDAM
- REOPENNING OF BAYS 10 TO 6

PHASE 2.1

- CONSTRUCTION OF PIERS 5 TO 2 AND THE LEFT ABUTMENT
- INSTALLATION OF EMBEDDED FRAMES AND HEATING ELEMENTS OF THE NEW GUIDES

PHASE 2.2

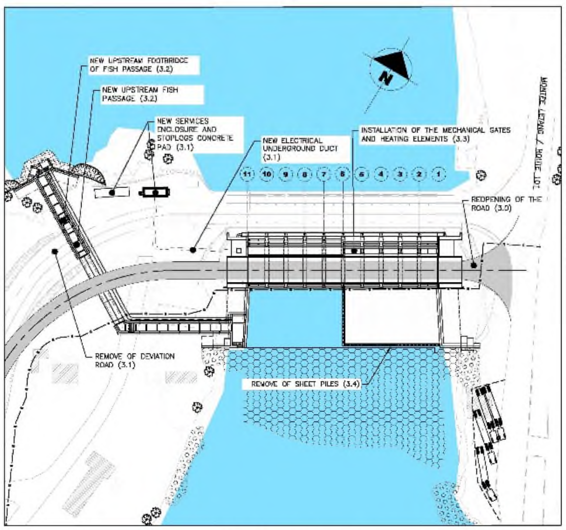
- CONSTRUCTION OF BRIDGE AND OPERATION DECKS, BAYS 10 TO 1
- CONSTRUCTION OF THE UPSTREAM FOOTBRIDGE, CABLE TRAY AND GRATING SPANS
- INSTALLATION OF GUIDE RAILS, SIDEWALK AND LIGHT POLES
- INSTALLATION OF ASPHALT MEMBRANE ON DECK, BAYS 10 TO 1
- INSTALLATION OF HOT WATER PIPE

PHASE 2.3

- CONSTRUCTION OF FISH PASSAGE (DOWNSTREAM)
- CONSTRUCTION OF THE FOOTBRIDGE OF FISH PASSAGE (DOWNSTREAM)

PHASE 2.4

- CONSTRUCTION OF DEVIATION ROAD
- CONSTRUCTION OF THE CULVERT OF FISH PASSAGE
- NEW ROAD LINE
- RELOCATION OF THE GAS PIPE LINE (BY ENERGIR)
- PAVEMENT AND ROAD SIGNS



PHASE 3 – PLAN VIEW

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PHASE 3.0

- REOPENING OF THE ROAD

PHASE 3.1

- REMOVE OF DEVIATION ROAD
- CONSTRUCTION OF ELECTRICAL UNDERGROUND DUCT
- CONSTRUCTION OF THE NEW SERVICES ENCLOSURE AND STOPLOGS CONCRETE PAD

PHASE 3.2

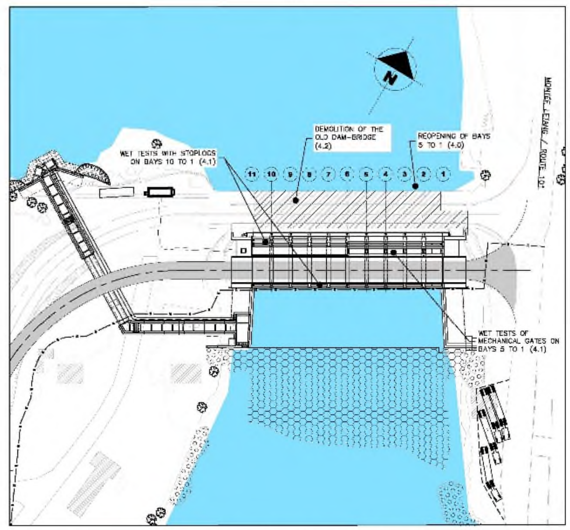
- RELOCATION OF THE GAS PIPE LINE (BY OTHERS)
- CONSTRUCTION OF FISH PASSAGE (UPSTREAM)
- CONSTRUCTION OF THE FOOTBRIDGE OF FISH PASSAGE (UPSTREAM)

PHASE 3.3

- INSTALLATION OF THE MECHANICAL GATES
- INSTALLATION OF HEATING ELEMENTS
- DRY TESTS WITH STOPLOGS ON BAYS 5 TO 1

PHASE 3.4

- REMOVE OF SHEET PILES



PHASE 4 – PLAN VIEW

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PHASE 4.0

- REOPENING OF BAYS 5 TO 1

PHASE 4.1

- RELOCATE THE STOPLOG LIFTER
- WET TESTS WITH STOPLOGS ON BAYS 10 TO 1
- WET TESTS OF MECHANICAL GATES ON BAYS 5 TO 1

PHASE 4.2

- DEMOLITION OF THE OLD DAM-BRIDGE

Canada

Public Works and Government Services Canada / Travaux publics et services gouvernementaux Canada

Real Property Branch / Direction générale des biens immobiliers

TETRA TECH

NOTE :

1– THIS DRAWING IS INTRODUCED FOR INFORMATION. THE PRESENT SEQUENCE MAY BE MODIFIED BY THE CONTRACTOR PROVIDED THAT THE PROJECT MILESTONES PRESENTED IN THE QUOTE ARE FOLLOWED. THE CONTRACTOR TAKES THE ENTIRE RESPONSIBILITY OF THE CONSTRUCTION STEPS, MODIFIES THEM TO THE NEEDS, AT ALL SO AS TO ACHIEVE THE CONTRACTUAL OBJECTIVES.

Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies.

L'entrepreneur doit vérifier toutes les dimensions et conditions sur le site et aviser immédiatement le représentant du ministère de toute divergence.

revisions	description	date
–	EN COURS 99%	18-05-01

project / projet: REMPLACEMENT DU BARRAGE TÉMISCAMINGUE DU QUÉBEC

TIMISKAMING QUEBEC DAM REPLACEMENT

drawing / dessin: PROPOSED WORK PHASES

Designed By / Conçu par	PIERRE WAGNER, ing.	
Date	2017-08-25	(yyyy/mm/dd)
Drawn By / Dessiné par	WILLIAM T. / DENIS J.	
Date	2017 08 25	(yyyy/mm/dd)
Reviewed By / Examiné par	DENIS JACQUES	
Date	2017 11 01	(yyyy/mm/dd)
Approved By / Approuvé par	PIERRE WAGNER, ing., P. Eng.	
Date	2017-11-01	(yyyy/mm/dd)
Tender / Soumission	TPSGC PWGSC	
Project Manager / Administrateur de projets		

Project no. / No. du projet: R.073116.307

Drawing no. / No. du dessin: G005

Encroachment on the River Bed

The new dam/bridge will encroach on the river bed.

The permanent encroachment area on fish habitat (all species) is 6,098 m^2, whereas the temporary encroachment area is 5,141 m^2.

Work in Water

Some work requires dry conditions, such as concrete demolition, the construction of new foundations and concreting for the apron, piles and abutments.

The construction site will be dewatered using the existing dam upstream of the work area and a cofferdam between the Quebec shore and "Île Long Sault" downstream. Pumps will dewater and keep the work area dry during construction.

Some of the demolition work related the existing dam/bridge will take place in water.

Water Management

Dividing the project into the four main work phases mentioned above will guarantee that water levels will always be managed as well as they currently are. They will be managed carefully especially in the spring and for the entire duration of construction.

The required water evacuation capacity will be ensured by the Ontario Dam/bridge, as well as by part of the Quebec Dam/Bridge, which will operate during construction.

Excavation and Backfilling

The river bed is greatly eroded downstream of the existing dam/bridge. This area will require backfilling during phase 1 of construction

The installation of the apron and of the cofferdam may require sediment excavation. Based on the particle sizes and quality, the sediments may be reused to fill the eroded sections of the river bed. Excess excavated sediments will be stored for future use at other sites or eliminated in accordance with applicable regulations.

The quantity of excavated or filling materials is not yet available as this stage of the project.

10. EMISSIONS, DISCHARGES AND WASTE

Construction activities related to the dam/bridge will cause the emission and discharge of several types of contaminants in the environment, as well as residual waste.

Emissions and Discharges

Emissions or Discharges	Environment	Sources
Greenhouse gas Volatile Organic Compounds	Atmosphere	Machinery and construction site vehicles
Nitrogen oxides and nitrogen dioxide (NO_x)	Atmosphere	Machinery and construction site vehicles Possible use of explosives for the demolition of the old dam/bridge
Dust	Atmosphere	Machinery and construction site vehicles Dam/bridge demolition activities

Emissions or Discharges	Environment	Sources
Suspended solids	Ottawa River	Cofferdam installation and removal Demolition of the old dam/bridge
Hydrocarbons, oils, grease or other hazardous products	Ottawa River Sediments Soils	Accidental spills when using machinery Storage of hazardous materials

At this early stage, GHG emissions from the construction of the new dam/bridge and the dismantling of the existing structure are estimated at 1,812 T CO_2 eq.

Emissions are not anticipated during operation as the dam/bridge's equipment will be powered by electricity (hydro-power).

Waste and Waste Management

Waste generated during the project will consist of construction waste resulting from the erection of the new dam/bridge and the demolition of the old structure.

The main types of waste will include the following:

Construction phase	Waste
Construction of the new dam/bridge	Concrete, metals, cardboard, paper, wood, asphalt, excavated material
Dismantling of the existing structure	Concrete, metals, asphalt, wood, street lamps, excavated material

In addition, small quantities of hazardous residual materials will come essentially from machinery maintenance.

In the context of a project of this scale, waste resulting from construction, renovation and demolition will be managed in accordance with the *National Construction, Renovation and Demolition Non-Hazardous Solid Waste Protocol.* A management plan for construction, renovation and demolition waste will be established, which will favor reuse and recycling to avoid burial at landfill sites as much as possible. Through this plan, PSPC aims to achieve a construction, renovation and demolition waste valuation rate of 75%.

A plan for the management of contaminated materials, including elimination, will also be implemented in accordance with applicable environmental regulations. Waste will be managed based on quality.

11. PROJECT SCHEDULE

Period	Task	Constraints
From the beginning of May to the end of June 2020	Site mobilisation and installation	Work in water is not required
From the end of May to mid-July 2020	Preparation of the construction area	Work in water is not required
From mid-July to the end of December 2020	Phase 1: concrete works	Cofferdam installation: between July 15 and the beginning of October 2020

Period	Task	Constraints
From the end of December 2020 to the beginning of August 2021	Phase 2: concrete works and road construction	Demolition of the cofferdam before the end of December 2020
From the beginning of August to the end of December 2021	Phase 3: mechanical and electrical works	Removal of the sheet piles before the end of December 2021
From mid-July to the end of September 2022	Phase 4: demolition of the old dam/bridge	Demolition after July 15, 2022
From 2022	Operation of the new dam/bridge	Structure maintenance

INFORMATION ON THE PROJECT SITE

12. DESCRIPTION OF THE PROJECT SITE

The Quebec Dam/Bridge of the Timiskaming Dam Complex is located on the Ottawa River, at the border between the provinces of Quebec and Ontario, near the city of Témiscaming. It is located on public lands.

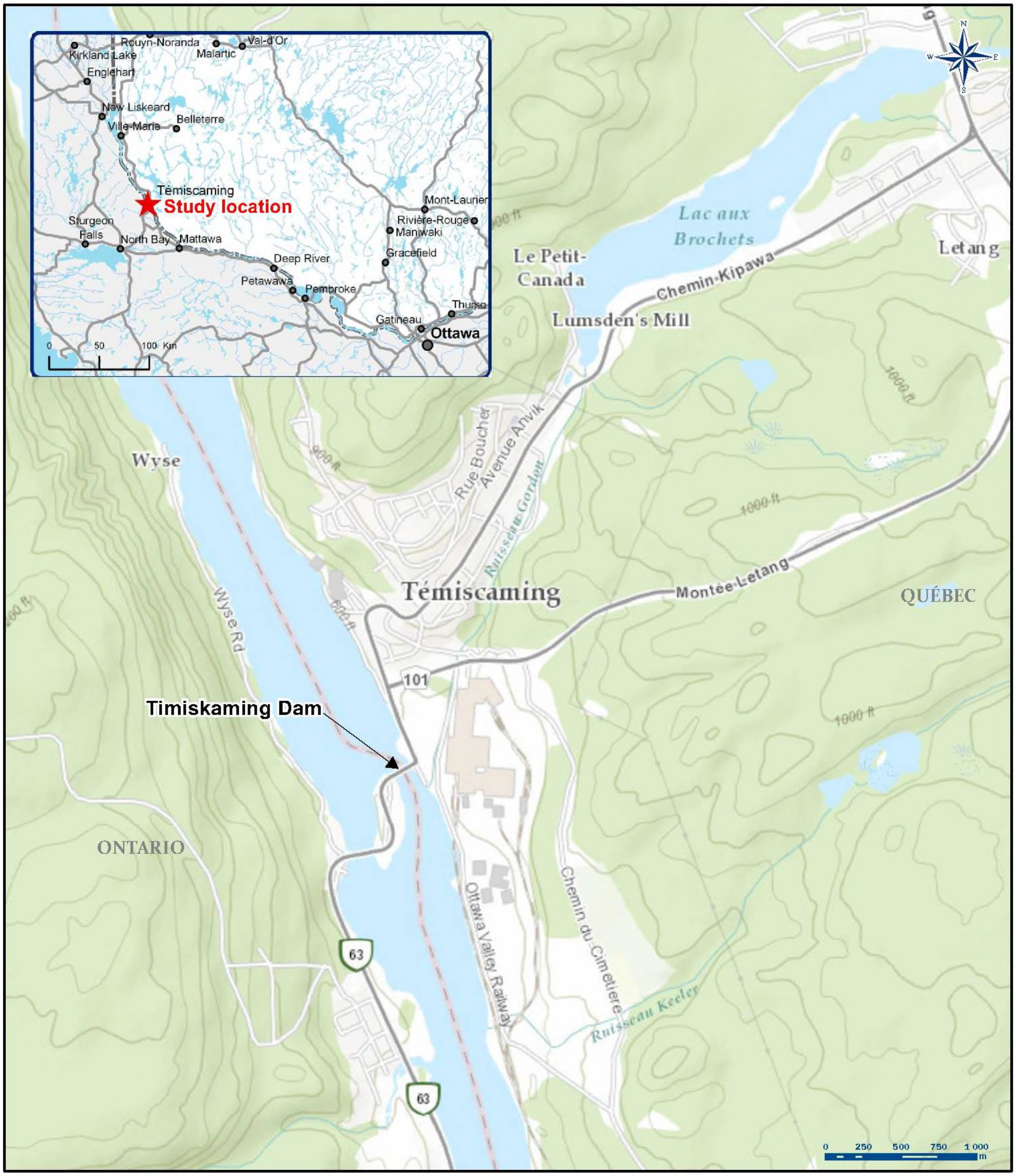
Geographic Coordinates

Center of the structure	46°42'41.7" N and 79°06'02.04" O
Western end of the structure	46°42’40.19 N and 79°06’03.17”O
Eastern end of the structure	46°42’41.65”N and 79°05’58.23”O

A plan of the site and a drawing showing the property limits are shown on next pages.

Distance from the Main Regional Landmarks and Reference Points

Regional Landmarks or Reference Points	Distance from the Project
Rayonier Advanced Materials Pulp and Paper Mill	150 meters
Canoe and kayak rental shop	150 meters
Slipway/access to water (“île Long Sault”)	350 meters
Nearest residences	450 meters (Ontario side)
Témiscaming City Hall	700 meters
Kebaowek First Nation Reserve	12 km
Wolf Lake First Nation Reserve (Hunters Point)	38 km
Temiskaming First Nation Reserve	102 km
Fort Témiscamingue National Historic Site of Canada	68 km



TETRA TECH	**Project** 32760TT	Coordinates system: WGS 1984 Web Mercator Auxiliary Sphere		**Map 1** Project Location
	Design P-A. C.	Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, ©		
	Map E. Nault	**Date** 2018-04-30	**Scale** 1:35 000	

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Legend

- Existing dam
- Proposed structure
- SPAC propriety limit
- Lot limit
- Encroachment
- Existing building

Project
32760TT

Design
P.-A.C.

Map
E. Nault

Coordinate system: NAD 1983 MTM 10

Aerial Imagery : Bing

TETRA TECH

Date
2018-04-30

Scale
1:2 500

Map 2
Work location and land parceling

Cadastre and Affected Land

The project will be built on public land, on parcels #31338 and #31339 listed in the *Directory of Federal Real Property*, which include water lots. The PSPC's land in Quebec covers approximately 5 ha and it is associated with parcels #4 389 676 and #3 659 440 of the Gendron county cadastre. Construction will take place on parcel #4 389 676 and will also affect parcels #3 660 088 (right of way on "Chemin Kipawa", property of the City of Témiscaming) and 3 659 427 (property of Rayonier Advanced Materials (RAM)). PSPC is currently working to conclude an agreement with RAM to become owner of the part of parcel #3 659 427 on which the project will be encroaching, to ensure that it will be entirely located on public land.

PSPC's land in Ontario covers approximately 19 ha and includes "Île Long Sault" in its entirety.

Land Descriptions

On the Quebec shore, the dam/bridge is in an industrial area where the Rayonier Advanced Materials pulp and paper mill is also located. Toward the north and the city of Témiscaming, along Route 101, approximately 400 meters from the construction site, there are residences and businesses (low occupation density).

On the eastern shore of "Île Long Sault", in the immediate vicinity of the dam/bridge, some federal buildings (offices, shops, service station, operator's residence) occupy the land. There is also a canoe and kayak rental shop on the island, which is managed by members of the Wolf Lake First Nation.

Access to Traditional or Aboriginal Land

The project is located on land claimed jointly by the Kebaowek, Timiskaming and Wolf Lake First Nations, at the boundaries of claimed of the Algonquins of Ontario territory. The Kebaowek First Nation reserve is located approximately 12 km north-east of the project.

An understanding between PSPC and the Wolf Lake First Nation is in force regarding the occupation of "Île Long Sault", where members of the Wolf Lake First Nation operate a canoe rental business (the Algonquin Canoe Company).

In addition, the construction area is located at the eastern end of the Métis Nation of Ontario's Mattawa/Lake Nippissing traditional gathering area.

The First Nations have the right to fish in the Ottawa River. The project is in an urban and industrial area, and traditional activities, such as hunting, trapping or gathering, therefore do not seem to be taking place in the immediate vicinity.

FEDERAL GOVERNMENT CONTRIBUTION

13. FINANCIAL SUPPORT

This is a federal project financed 100% by PSPC.

14. PUBLIC LAND

The entire project is built on public land.

The public land affected by the project consist of parcels #31338 and #31339 of the *Directory of Federal Real Property.*

15. AUTHORISATIONS UNDER FEDERAL LAWS

An authorisation under Article 35.2 of the Fisheries Act (R.S.C. (1985), c. F-14), as well as the approval of Transport Canada under the *Navigation Protection Act* (R.S.C. (1985), c. N-22), will be required.

ENVIRONMENTAL IMPACTS

16. BIOLOGICAL AND PHYSICAL ENVIRONMENTS

The project is located on land, in an urban and industrial area where the biological environment consists essentially of herbaceous zones.

The Timiskaming Dam Complex is located on the Ottawa River, which originates from Lake Chipimitchigama and flows over 1,271 km. Its watershed is 146,334 km^2. At the site of the complex however, the watershed covers 45,740 km^2.

Several dams manage the Ottawa River's flow. The average flow rate at the dam complex's discharge point is estimated at 750 m^3/s. The maximum flow rate can reach 3,500 m^3/s.

The Timiskaming reservoir, located upstream of the dam complex, is 319 km^2. At maximum capacity, approximately 1,250 Mm^3 of water can be stored. At this stage of the project, it has not been possible to delineate the current and future flood-prone areas.

In the Lake Timiskaming area, the risk of erosion is limited to the northern section of the lake. As the shores of the southern half of the lake consist of coarse materials and rock, they are therefore not greatly affected by erosion.

In the study area, air pollutant emissions and noise come from the Rayonier Advanced Materials Pulp and Paper Mill, located approximately 150 m east of the Quebec Dam, and vehicular traffic. These activities are likely to affect air quality and the sound environment. To date, data on sound and light environment is not available.

Studies show that the soil on both shores of the river consists in part of filled embankments. Hydrocarbon contamination has been identified near a service station on "Île Long Sault". It is recorded in the *Federal Contaminated Sites Inventory* (Government of Canada, 2017). Decontamination has not taken place.

A soil survey on "Île Long Sault" showed high concentrations of manganese in one area. There are no requirements regulating this substance at the federal and provincial (Ontario) levels.

A review of the technical literature identified 59 species of terrestrial fauna potentially present in the study area, of which 14 belong to herpetofauna and 45 are mammals. The presence of industries and the near absence of vegetation do not favor the establishment and maintenance of terrestrial fauna in the construction area.

One of the monitoring stations of the MDDELCC's "Banque de données sur la qualité du milieu aquatique" or BQMA (aquatic environment database) is located near the Quebec Dam/Bridge. Out of the numerous parameters monitored at the station, only turbidity values have exceeded acceptable criteria.

Based on the data consulted, 32 species of fish may be observed in the Ottawa River. 2017 fish censuses confirmed the presence of 30 of these species, including the walleye (*Sander vitreus*), the northern pike (*Esox lucius*), the lake herring (*Coregonus artedi*), the white sucker (*Catostomus commersonii*), the lake whitefish (*Coregonus clupeaformis*), the northern sucker (*Catostomus catostomus*) and the sauger (*Sander canadensis*). The lake sturgeon (*Acipenser fulvescens*) was found to be more numerous on the Ontario side (census 2013) compared to Quebec side (census 2006 and 2017).

Twenty-eight threatened, vulnerable or endangered species may be observed in the construction area, i.e. 13 species of birds, 2 species of reptiles, 7 species of mammals and 6 plant species. Due to the absence of habitat in the study area, 12 of these species are not likely to be observed. The potential presence of the other 16 species is low due to the small habitat areas available and their poor quality. During the censuses of 2017, special status plant species have not been observed in the study area and three species are recorded as threatened in the public registry established under the *Species at Risk Act*. They are the common nighthawk (*Chordeiles minor*), the chimney swift (*Chaetura pelagica*) and the barn swallow (*Hirundo rustica*). The chimney swift is likely to be included in Quebec's threatened or vulnerable species. The bald eagle (*Haliaeetus leucocephalus*), a vulnerable species under the Quebec *Act Respecting Threatened or Vulnerable Species*, was also observed in the study area. However, these species are not likely to nest in the study area due to the absence of suitable habitat.

17. IMPACTS OF THE PROJECT ON THE ENVIRONMENT

Environmental Element	Anticipated Impacts
Fish and their habitat, as defined in paragraph 2(1) of the *Fisheries Act* Aquatic species as defined in paragraph 2(1) of the *Species at Risk Act*	• Permanent encroachment in fish habitat would be 6 098 m² (all type of habitat), and the temporary encroachment would be 5 141 m². • Temporary deterioration of the water quality resulting from the suspension of solids • Disturbance of fish species due to construction, noise, dust and traffic • Alteration of fish habitat in the footprint of the cofferdam and due to the modification of flow downstream • Risk of habitat contamination by hydrocarbons, oils, grease and other hazardous materials • Loss and modification of fish habitat due to permanent and temporary structures encroaching on the river bed • Potential impact on special-status fish species (lake sturgeon)

Environmental Element	Anticipated Impacts
Migratory birds as defined in paragraph 2(1) of the *Migratory Birds Convention Act* (1994)	• Minor loss of habitat • Habitat alteration • Disturbance of the avifauna due to noise, dust and traffic • Potential impact on special-status migratory species
Human environment	• Disturbance or temporary relocation of fishing areas downstream of the dam • Occasional traffic changes • Increase of truck traffic during some construction phases

18. IMPACTS OF THE PROJECT ON PUBLIC LANDS OR THE LAND OF ANOTHER PROVINCE

During construction, and more specifically during the first construction phase, all water levels will be managed via the Ontario Dam/Bridge. This could cause increases in flow and erode the river bed.

19. IMPACTS OF THE PROJECT ON FIRST NATIONS

The project will impact the First Nations in several ways, e.g.:

- Perturbations or temporary changes in terms of land use, specifically regarding traditional fishing in the area;
- Impacts on tourist kiosks on “Île Long Sault”;
- Possible presence of archaeological sites in the construction right-of-way.

On a positive note, construction should create jobs locally and favor the development of businesses in the construction sector. This will affect the population in general, including First Nations.