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 <b>Pure Fonte Ltée</b>	<b>PURE FONTE LTÉE</b> <b>PIG IRON PRODUCTION PLANT – FEASIBILITY STUDY</b> <b>CUSTOMER N°: 1821</b>
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 	<b>TENOVA</b> <b>TECHINT ENGINEERING &amp; CONSTRUCTION</b>
	<b>FEASIBILITY STUDY</b> <b>SECTION 3</b> <b>PLANT SITE LOCATION AND DESCRIPTION</b>

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  	TENOVA TECHINT ENGINEERING & CONSTRUCTION
	SECTION 3 – PLANT SITE LOCATION AND DESCRIPTION <b>CHAPTER 3.1</b> SAGUENAY AREA

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- [2] "commons.wikimedia.org/wiki/File:Chicoutimi\_-\_Centre-ville\_Est.jpg," [Online]. Available: [https://en.wikipedia.org/wiki/Saguenay,\\_Quebec#/media/File:Ville\\_saguenay\\_montage.jpg](https://en.wikipedia.org/wiki/Saguenay,_Quebec#/media/File:Ville_saguenay_montage.jpg). [Accessed 30 July 2016].
- [3] Ministère de l'Énergie et des Ressources naturelles, "The maritime territory," [Online]. Available: <https://strategiemaritime.gouv.qc.ca/en/strategie-maritime/le-territoire-maritime/>. [Accessed 30 July 2016].
- [4] Promotion Saguenay, "personal communication," 2016.
- [5] EZ Cruising , "Down the St. Lawrence and up the Saguenay Rivers," [www.wordpress.com](http://www.wordpress.com), 17 July 2012. [Online]. Available: <http://www.ezcruising.net/uncategorized/down-the-st-lawrence-and-up-the-saguenay-rivers-part-ii/>. [Accessed 30 July 2016].
- [6] ADMINISTRATION PORTUAIRE DU SAGUENAY, "Album photo," 2005. [Online]. Available: <http://www.portsaguenay.ca/photo.php?page=82&lang=eng>. [Accessed 30 July 2016].

### 3.1 Saguenay Area

#### 3.1.1 City of Saguenay

Saguenay is a city in the Saguenay–Lac-Saint-Jean region of Quebec, Canada, on the Saguenay River, about 200 kilometres (120 mi) north of Quebec City by overland route. It is about 126 kilometres (78 mi) upriver and northwest of Tadoussac, located at the confluence with the St. Lawrence River. This city was formed in 2002 by a merger and annexation of smaller jurisdictions, including Chicoutimi, founded by the French in 1676. Prior to its use as the name of the city, the term "the Saguenay" had already been used for the whole Saguenay River region (see Saguenay–Lac-Saint-Jean).

The city is divided into three boroughs: Chicoutimi (which includes the former city of Chicoutimi, as well as Laterrière and Tremblay township), Jonquière (which includes the former city of Jonquière, Lac-Kénogami, and Shipshaw) and La Baie (which corresponds to the former city of La Baie). The total population from the 2006 census was 151,643. According to the Institute of Statistics of Québec, in 2014 GDP per capita was C\$37,225 and disposable income per capita was C\$24,483.

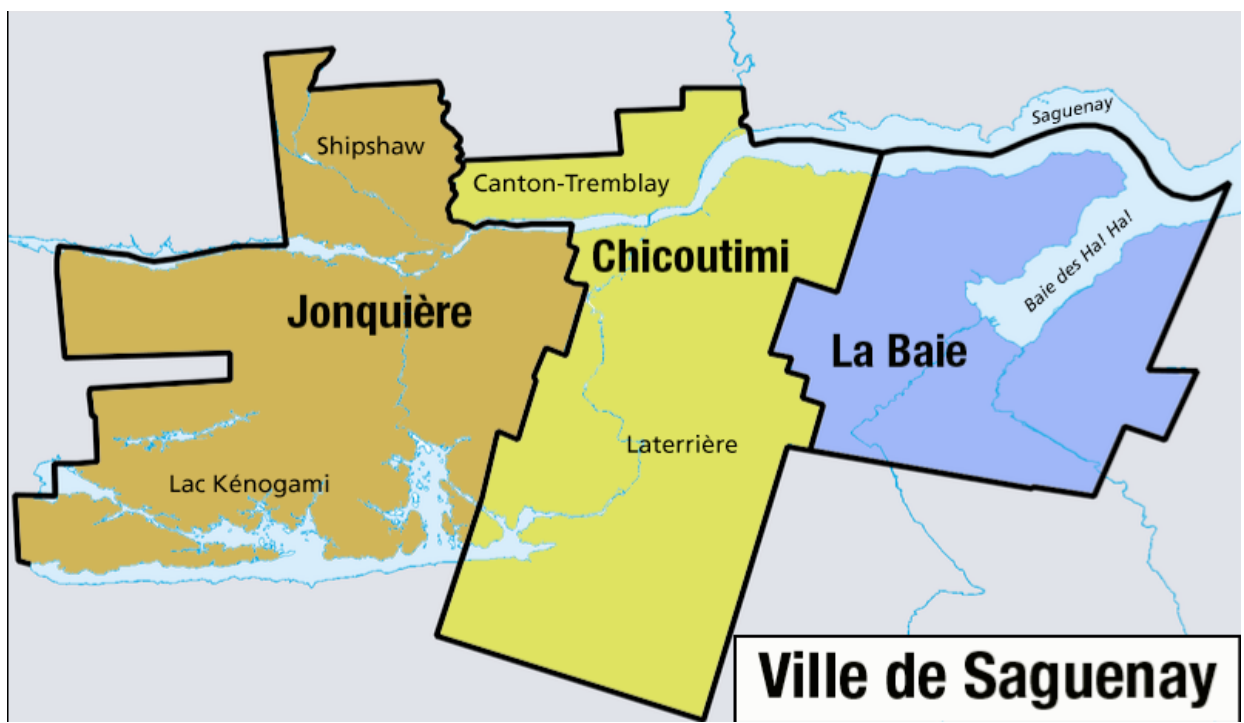


Figure 3.1-1.: Saguenay’s three boroughs [1]

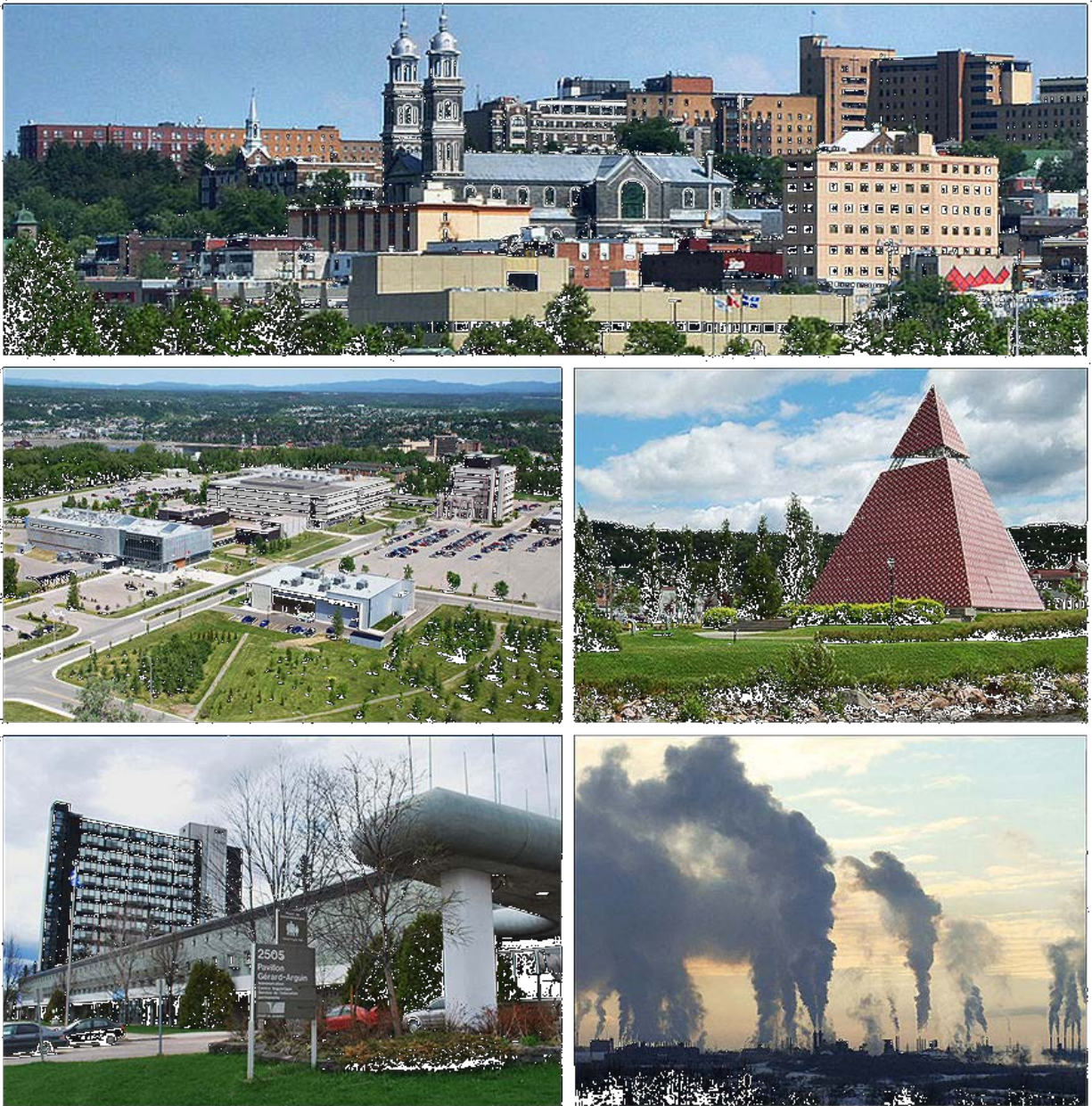


Figure 3.1-2.: Downtown Chicoutimi borough, the UQAC, the Ha!Ha! pyramid, the Cégep de Jonquière, and Rio Tinto's aluminium smelters in Arvida [2]





Figure 3.1-3 Québec's maritime territory [3]

The city of Saguenay is familiar and comfortable with heavy industry and metals industry. One of the largest employers in the area is Rio Tinto Alcan. Furthermore, the Saguenay–Lac-Saint-Jean area is one of the world’s major center of aluminum production thanks to five aluminum smelters and an annual production of close to one million tonnes, which accounts for 32% of Canadian production. A number of companies and industries have established themselves to service the large smelters in the area.

Company	Area of Activity	Number of Employees
<b>Private sector</b>		
Rio Tinto Alcan	Primary production of alumina and aluminum	3,319
Groupe Ceger	Construction of buildings and industrial structures	773
CGI	Design of computer systems and related services	540
Group Fernand Gilbert Itée	Site preparation contractors	485
Groupe CANMEC	Repair and maintenance of commercial and industrial machines and equipment	460
Acier MYK inc.	Contractors in steel structure installation and precast concrete	350
Garda	Safe-keeping and patrolling services	300
Reboitech inc.	Forestry support services	300
Entrepôts Costco	Hypermarkets	280
Groupe Alfred	Residential construction	275
<b>Public sector</b>		
Integrated University Health and Social Services Centres (CIUSSS) SLSJ	Health and social services	6,074
Canadian Forces Base of Bagotville	National security and defense	1,800
City of Saguenay	Public administration	1,600
Rives-du-Saguenay School Board	Education	1,474

Table 3.1-1.: Main Employers in the city of Saguenay [4]

### 3.1.2 Review of the Site Selection

The criteria by which PURE FONTE LTÉE chose the Saguenay site are:

- Accessibility of the maritime waterways (deep water port) as well as railway and roads;
- Availability and reliability of energy resources (natural gas and electricity);
- Proximity to raw material;
- Proximity to the markets of the United States and Europe;
- Site characteristics (zoning, land purchase, industrial infrastructure, etc.);
- Favorable corporate tax rates; and
- Accessibility to qualified labor

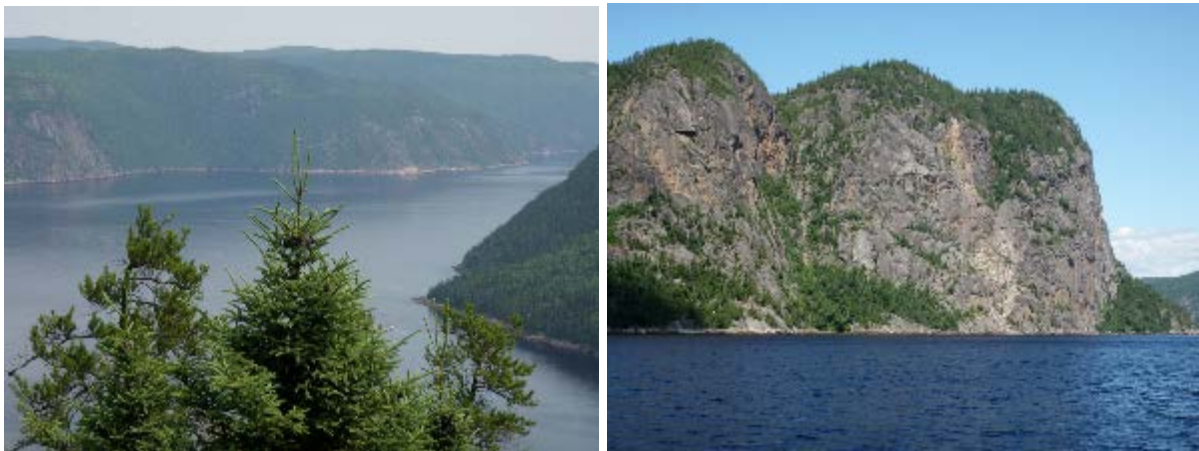
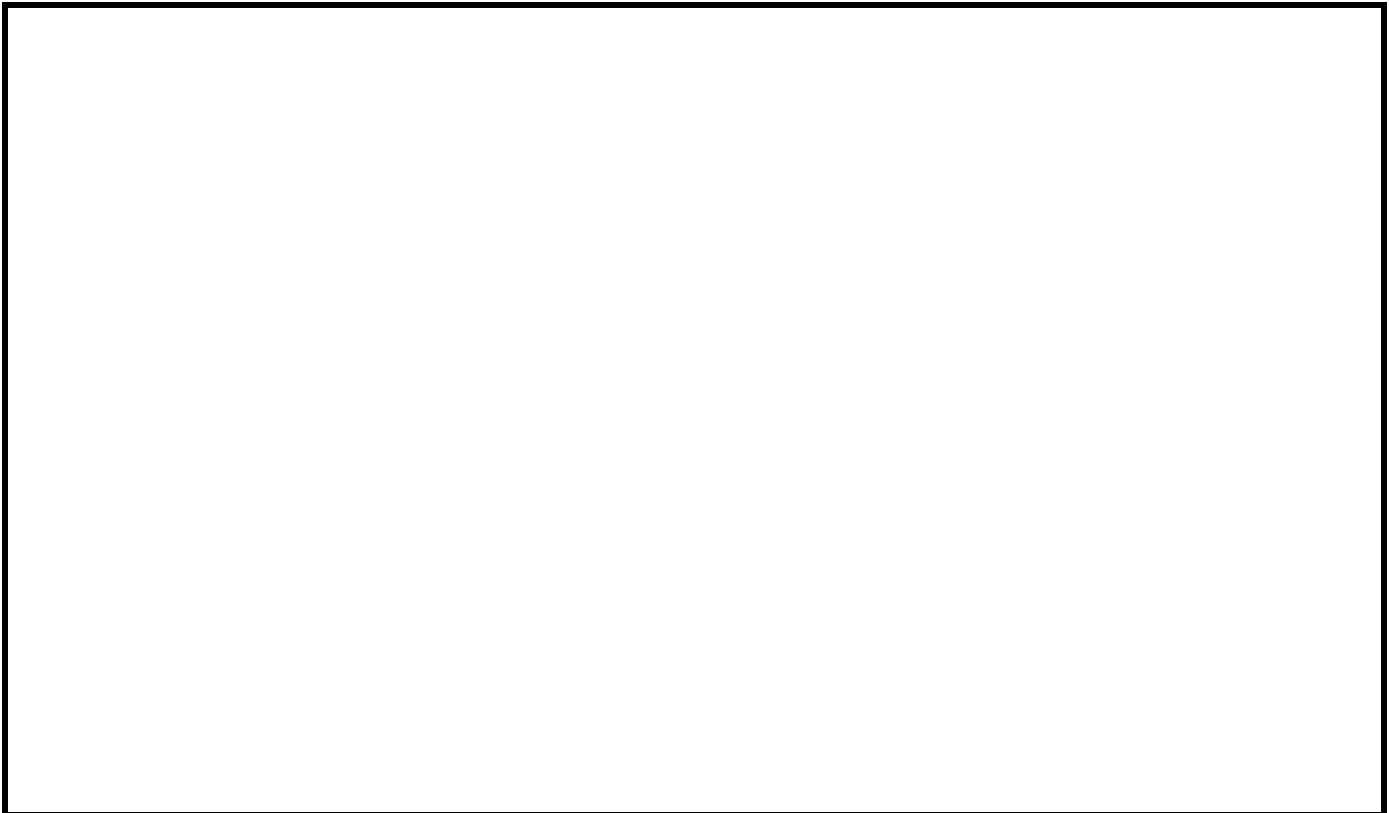


Figure 3.1-4.: Saguenay river from Cap Trinite and The cliffs of Cap Trinite, at the mouth of Baie Eternite, Parc national du Fjord-du-Saguenay [5]





Figure 3.1-5.: the Saguenay Port [6]



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Chapter's references:

[1] SNC Lavalin, "Carte 4.1 - Délimitation des zones d'étude et stations d'échantillonnage," June 30, 2016.

## 2.2 Port Site Description

### 2.2.1 The PURE FONTE LTÉE Site

PURE FONTE LTÉE has chosen to construct its pig iron production facility on industrial land belonging to the Saguenay Port Authority (**Administration portuaire du Saguenay, APS**), near the maritime terminal of Grande-Anse in the City of Saguenay, La Baie district. APS has developed the land on which PURE FONTE LTÉE will build its plant in order to fulfill its mission, which consists of favoring the expansion of outside business as well as the industrialization and development of the inland region of Saguenay-Lac-Saint-Jean-Chibougamau-Chapais. In 2015, the Port Authority of Saguenay received designation as an industrial-port zone by the Quebec government in the context of its maritime strategy.

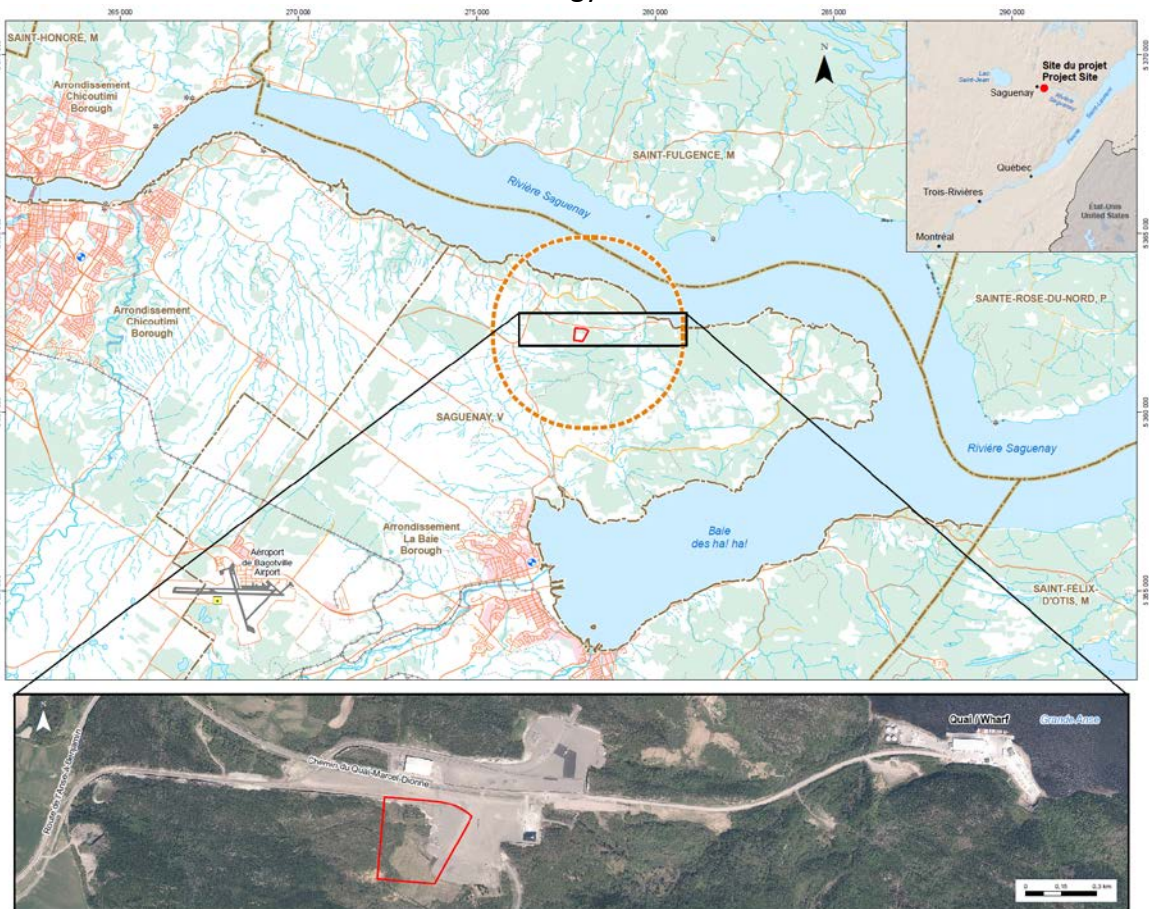


Figure 3.2-1 PURE FONTE LTÉE site at Port Saguenay [1]

Globally, industrial-port zones will allow Quebec exports to increase through an improved integration of manufacturing to global supply chains (Quebec government, Stratégie maritime, 2015).

PURE FONTE LTÉE could benefit from future developments at the port by sharing infrastructure and port services with other future occupants with the goal of increasing the efficiency of these activities. A primary example of this would be a multi user conveyor system to move material from dock to industrial site.

This federal industrial-port zone offers several advantages to the construction of a pig iron production facility:

- Deep water port accessible year-round situated at a reasonable distance from raw material suppliers of the market;
- Space available near to the port (2.5 km)
- Qualified labor in the steel industry sector.
- Commitment by the Port Authority of Saguenay to construct a multi-user conveyor between the jetty and the industrial zone that could be used for the transport of pellets and pig iron;
- Site provided by the Port Authority of Saguenay already cleared and leveled;
- Land at the heart of an industrial-use zone
- Remoteness of urban perimeters allowing for the existence of major industrial operations;
- Availability and reliability of natural gas supply (commitment from Gaz Metro to extend its network to serve the facility);
- Availability and reliability of the electric network (commitment from Hydro Quebec to extend its network to serve the facility);



The exact location of the site on the Port Authority of Saguenay land was defined following a geotechnical study as well as discussions with Port Authority of Saguenay that wishes to both set aside land for the construction of a future railway that would serve this sector, and to maintain its commitments to other private project promoters.

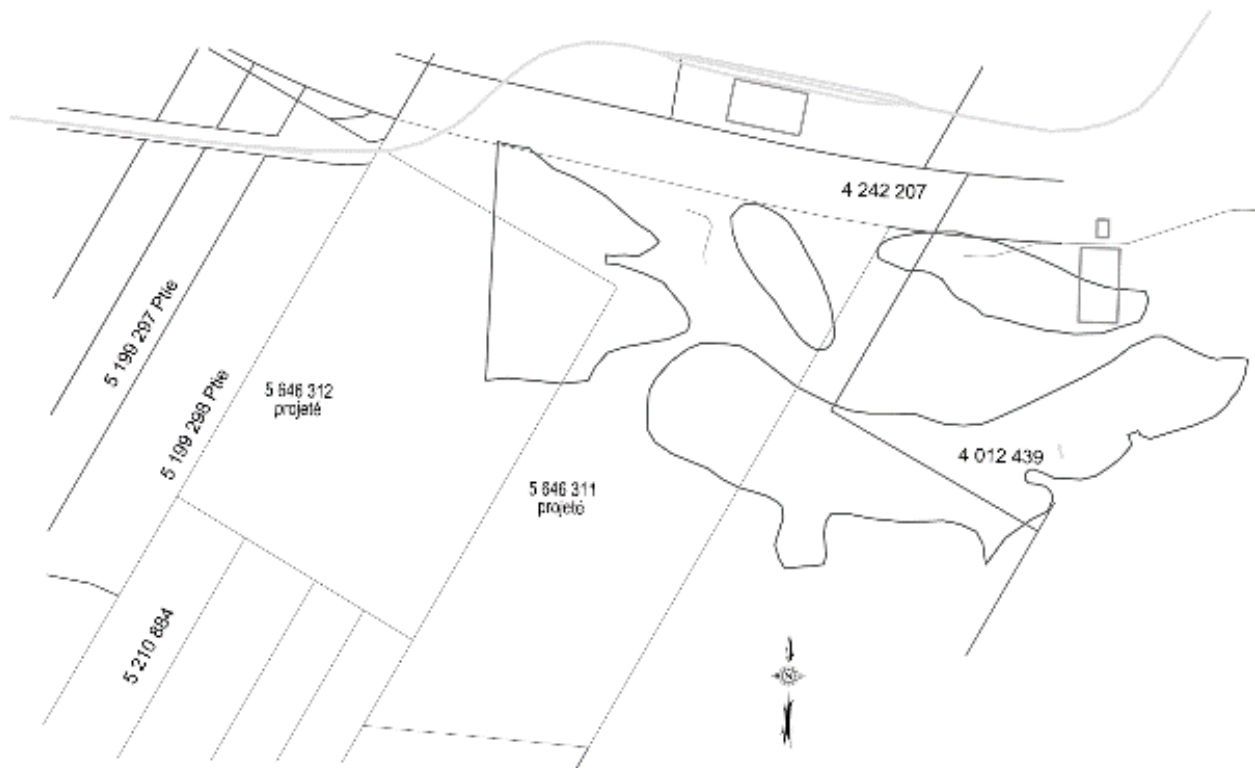


Figure 3.2-2.: Lots that APS has reserved for PURE FONTE LTÉE plant are indicated above with the projected numbers # 5 646 312 and # 5 646 311

The land would remain the property of APS and would be leased to PURE FONTE LTÉE via a long-term lease.