

## RAISING A SECTION OF LALANDE BOULEVARD AND NATURALISATION OF THE RIVER BANK



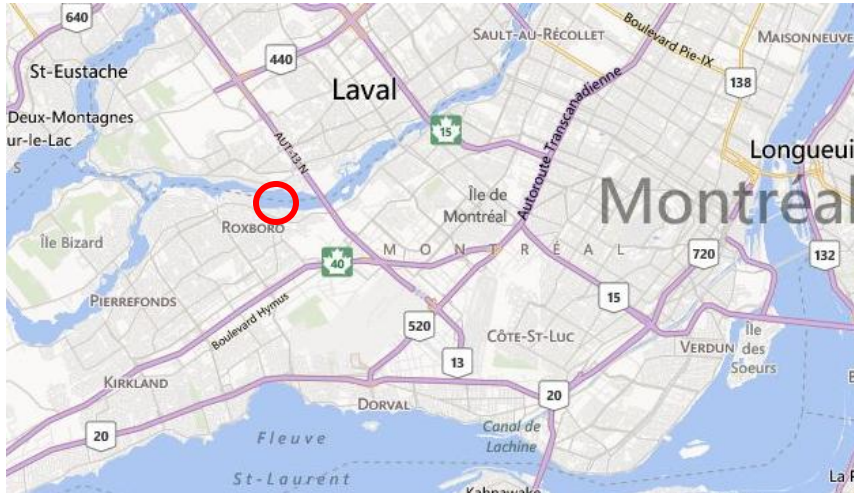
February 2016

## CONTEXT

The borough of Pierrefonds-Roxboro wishes to upgrade a portion of Lalande Boulevard, see to the redevelopment of Promenade-Lalande Park and the naturalisation of its embankment

Lalande Boulevard:

- is located along Rivière des Prairies to the North of Gouin O. Boulevard and West of Highway 13;
- offers a spectacular view of Rivière des Prairies;
- serves a residential sector and the Pierrefonds Marina;
- its location is regularly affected in part by spring flooding, is in the twenty and one hundred year flood zone.



## The interventions will allow:

- To ensure the reliability of the road network;
- To ensure public security;
- To promote the development of the waterside roadway;
- Promote the use of active modes (cycling and pedestrian networks);
- The naturilization of this portion of the embankment of Rivière des Prairies.

The work area affects approximately one (1) kilometer of Lalande Boulevard in its portion along the Rivière des Prairies.



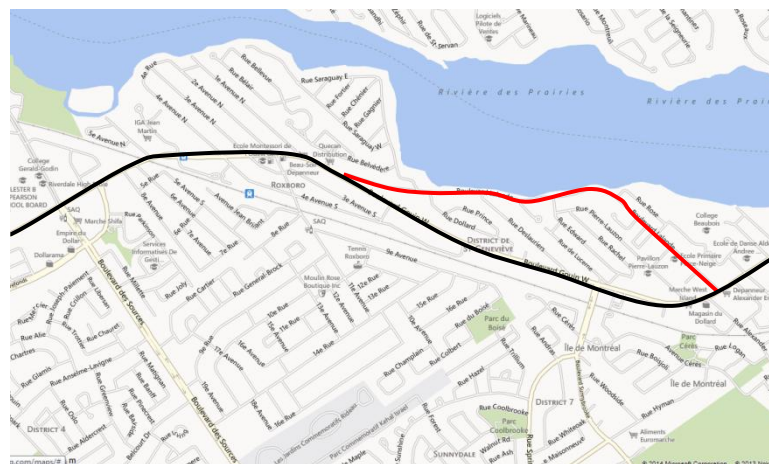
# THE BOULEVARD'S EVOLUTION THROUGH TIME

## Lalande Boulevard's history is intimately linked to that of Gouin Boulevard

Gouin Boulevard was the axis of development of the entire northern part of the island of Montreal. With a few exceptions, the original layout has not changed. It is often described in the twentieth century as one of the most beautiful roads of the city because of its sinuous, its narrowness and the old houses and many mature trees in its surroundings.

In the old parish of St. Genevieve, between 1907 and 1911, a bypass is created on Gouin Boulevard to allow a more direct traffic circulation (less sinuous) than the initial path. This new path is attached to Gouin Boulevard, while the old road is renamed Lalande Boulevard in 1976.

**Lalande Boulevard, initially Gouin Boulevard, has retained over time its particular character of the old panoramic path associated with vacationing.**



## TRANSFORMATION THROUGH THE YEARS

Prior to the completion of the official flood maps in 1977, the riverside landscape of this territory has undergone numerous changes, such as:

- The artificialisation of the shorelines in the 60s;
- The raising of many lots;
- The construction of the pumping station;
- The raising of the boulevard in two places in the upstream and downstream sections of the work area;
- The urbanisation of the territory.

## THE REPERCUSSIONS ON THE ENVIRONMENT

- The occasional presence of significant flooding which requires an emergency action from the borough;
- The need for the borough, to install temporary barriers during major flooding (sandbags) to slow the rising waters on the boulevard;
- The occasional flooding of certain properties on this section of the boulevard;
- The presence of erosion and instability of the artificial river bank.



1975 FLOOD



WALL ERECTED AGAINST THE FRAZIL IN 2004



ARTIFICIALISATION OF THE RIVER BANK

## PROJECT'S JUSTIFICATION

The proposed work will allow :

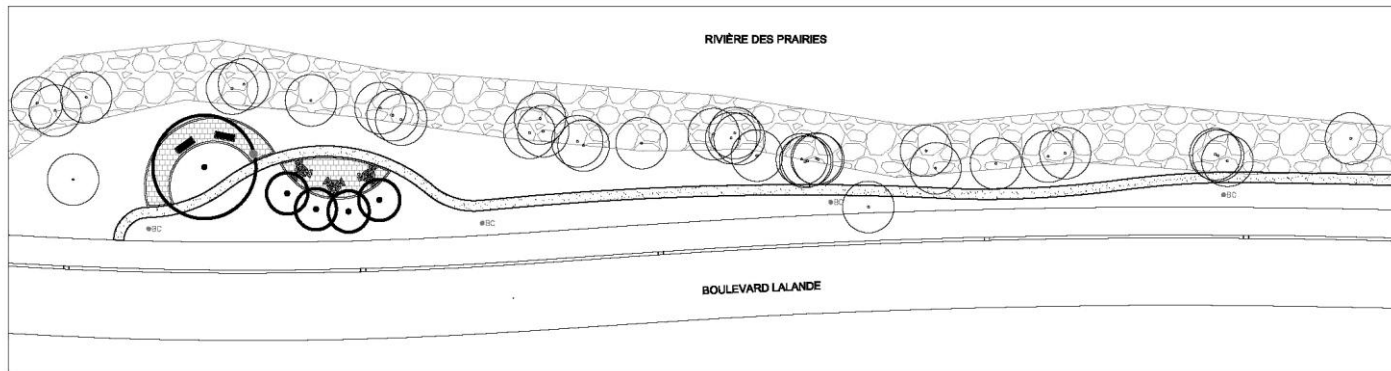
- Reduction of flood risks and adverse effects left by ice;
- Travel safety at all times;
- Immunization of the boulevard's infrastructures;
- Development of the trail and rest areas of the park on the Promenade-Lalande;
- Develop the embankment in order to stabilize and naturalize it;
- Create riverside wildlife habitats.



## THE PROPOSED WORK

Solution retained in order to adequately meet the criteria formulated by the Ministry in Appendix 2 of its Shoreline Protection Policy, Coastal Areas and Flood Plains :

- The enhancement and expansion of Lalande Boulevard;
- The redevelopment of the Park Promenade-Lalande;
- The naturalization of the river bank.



## The work proposed for the enhancement and expansion of the boulevard consist of:

- The enhancement of the road from 16cm to 86cm (depending on its location).
  - The enhancement necessary to implement the roadway of Lalande Boulevard above the 100 year coastal level;
  - The average level of the roadway is above the 100 year coastal level (2006 ratings) which is 21,19 meters;
  - The street level of the new road will be 20cm above the 100 years coastal level, the average level of 21,39 meters;
- In building a roadway of 6,5 meters in width with a multipurpose path on the north side of the boulevard;
- Moving the Bell Canada and Hydro-Québec poles (integrated intervention to the exemption request).



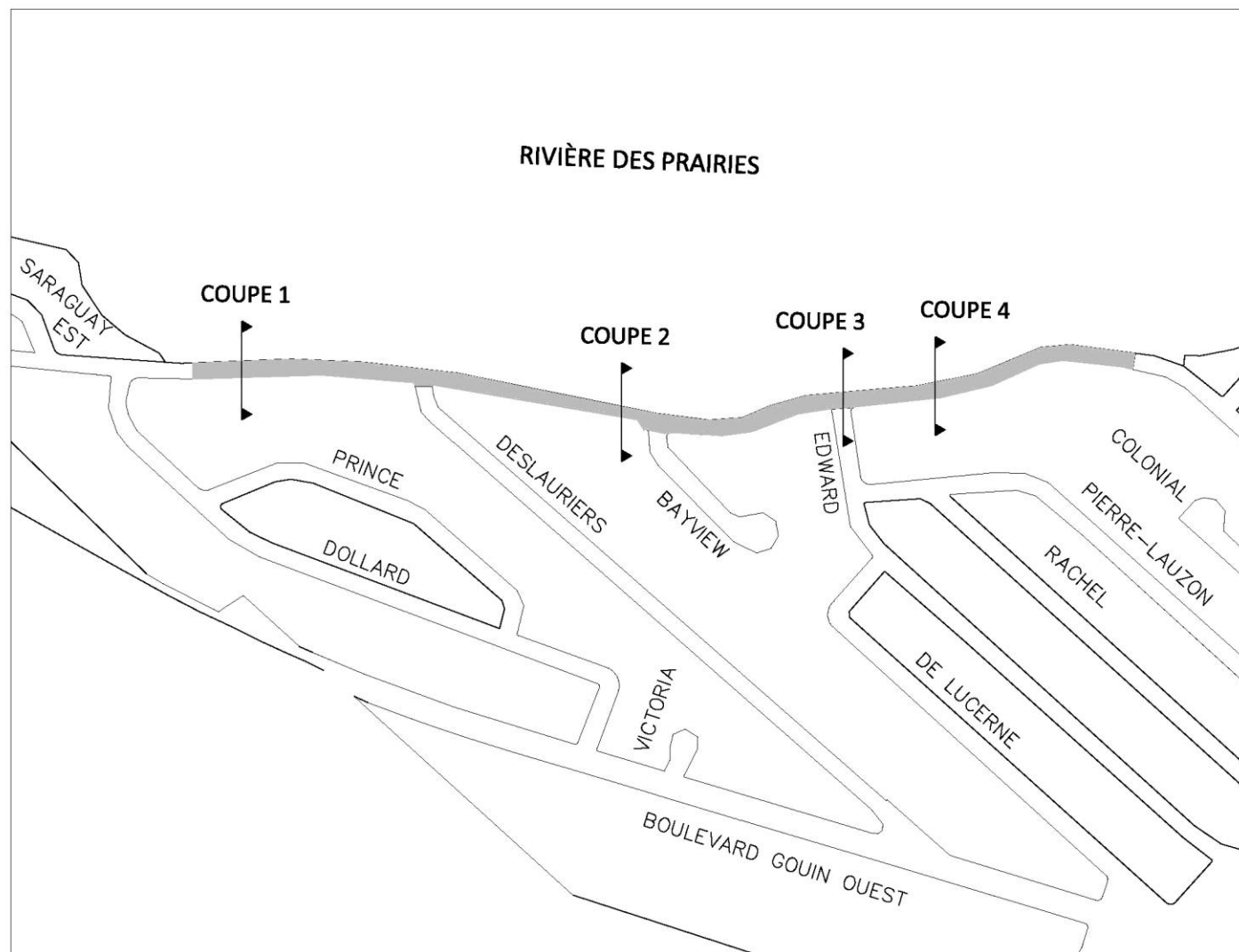
**The proposed work for the redevelopment of the park and the naturalization of the shoreline consist of :**

- **Naturalize all of the river bank located in the construction zone to :**
  - Increase biodiversity by increasing the tree stratum, shrub and grass family;
  - Increase the types of habitats for wildlife.
- **Stabilize portions of the existing retaining blocks with the following work :**
  - Correct the drainage at the top of the slope;
  - Installing a membrane and stone behind the stabilizer blocks;
  - Put back in place the stabilizer blocks;
  - Revegetation of retaining blocks.
- **Develop path and rest areas of the Promenade-Lalande park.**

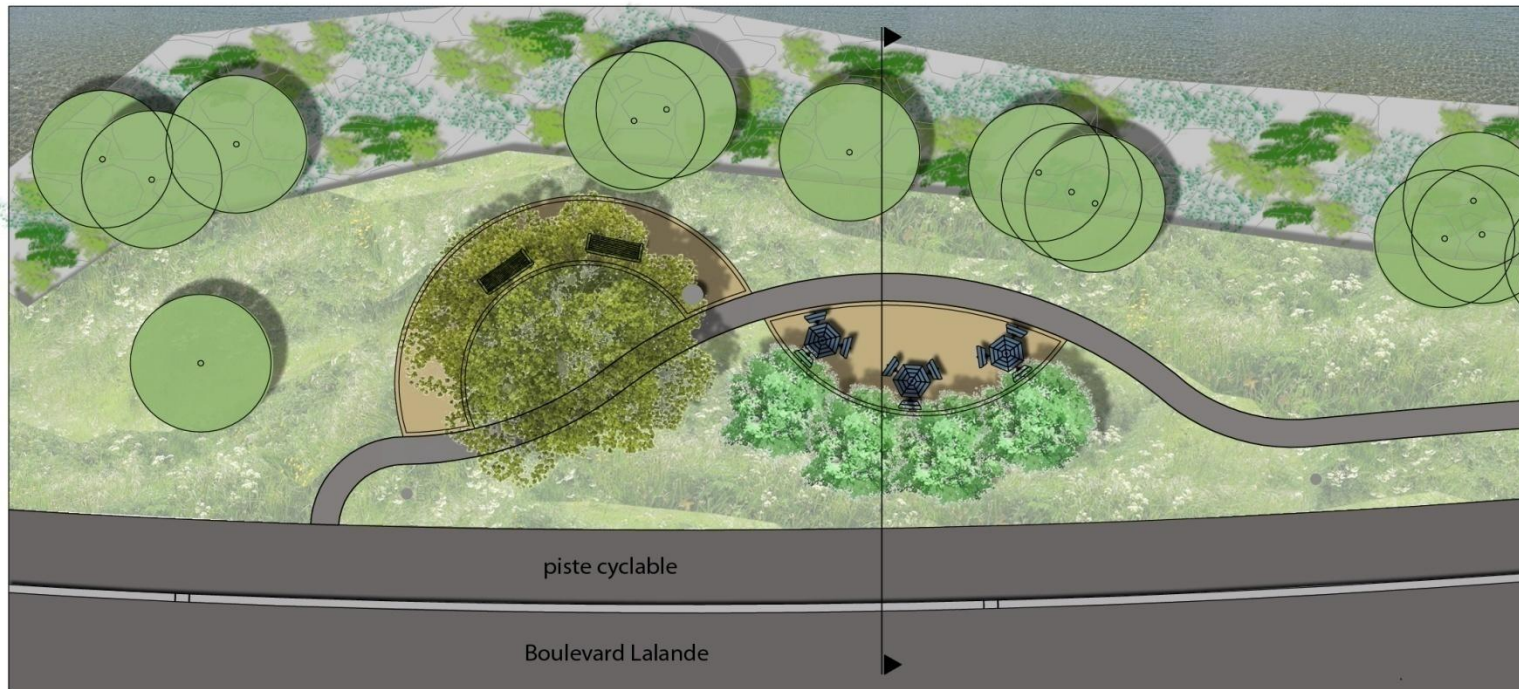
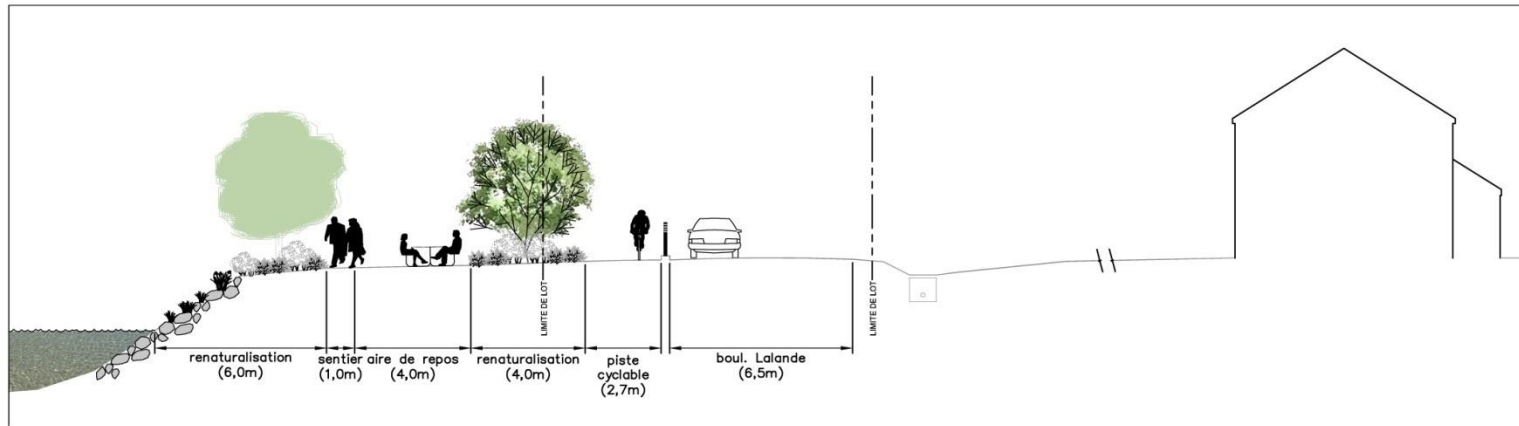
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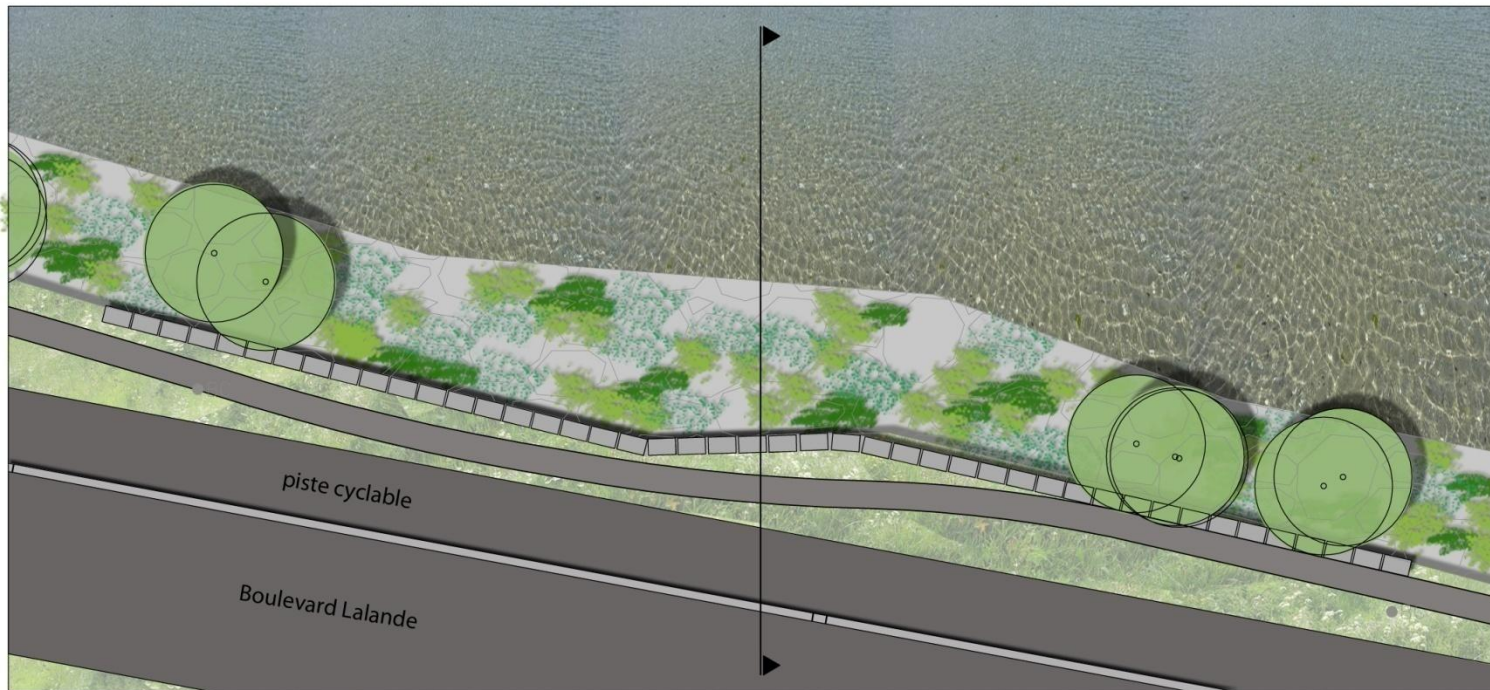
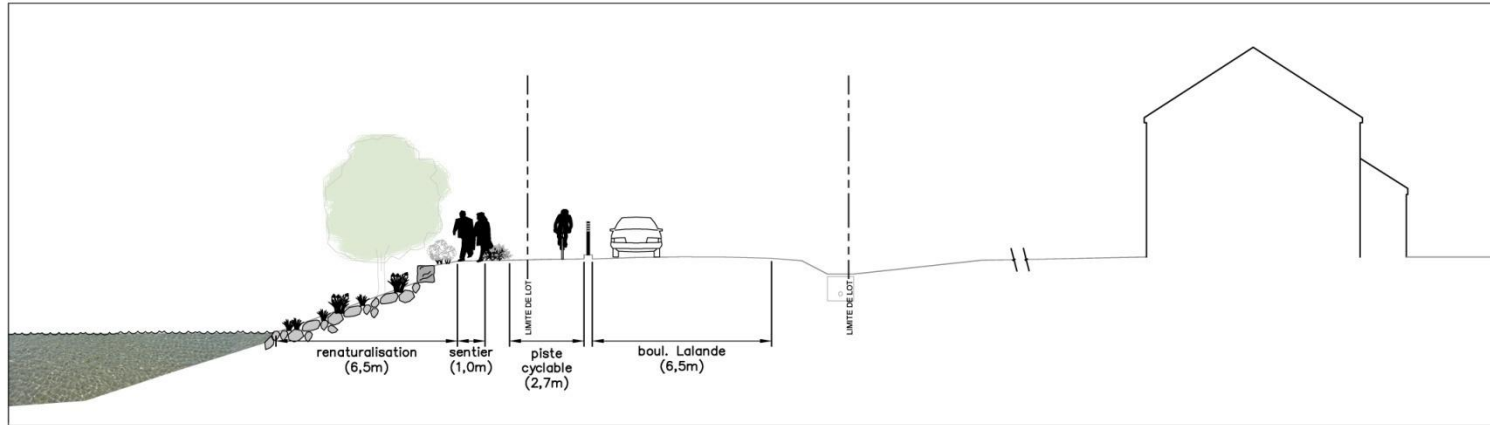
## DEVELOPMENT WORK OF THE WATERFRONT - LOCATION MAP



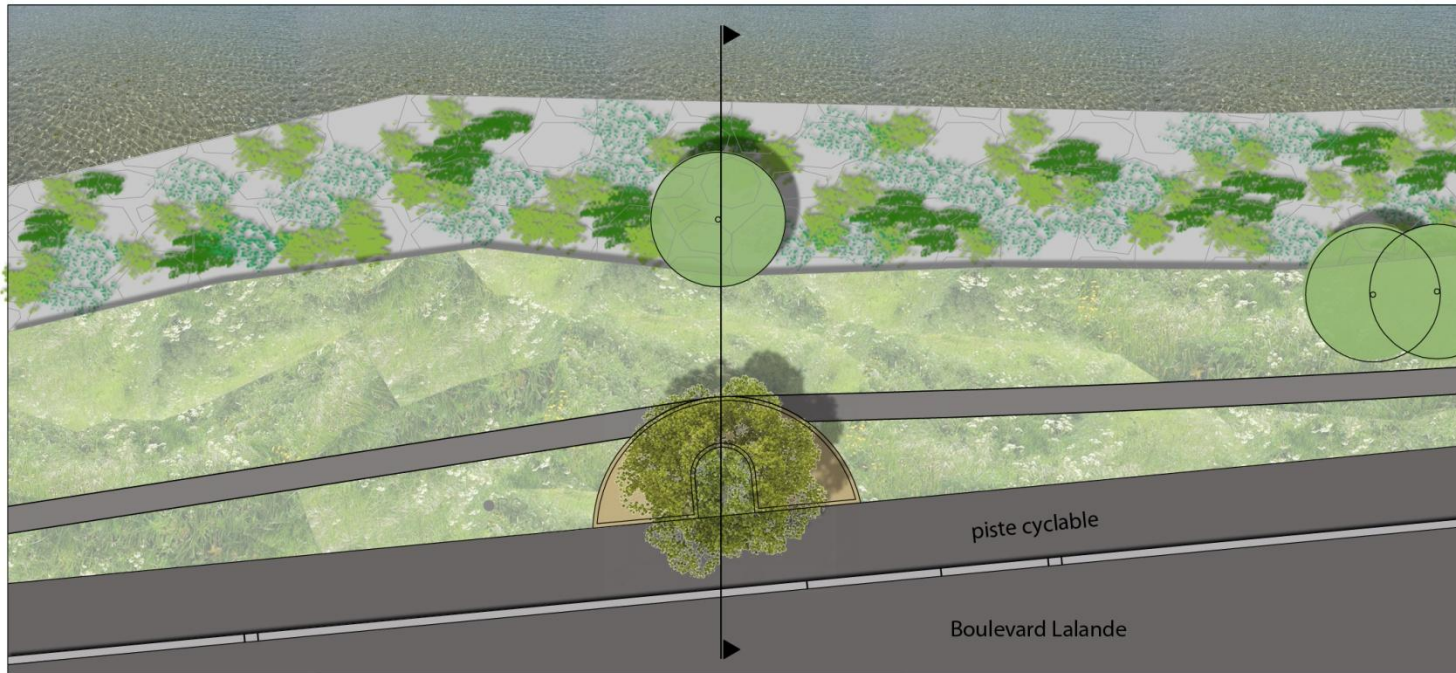
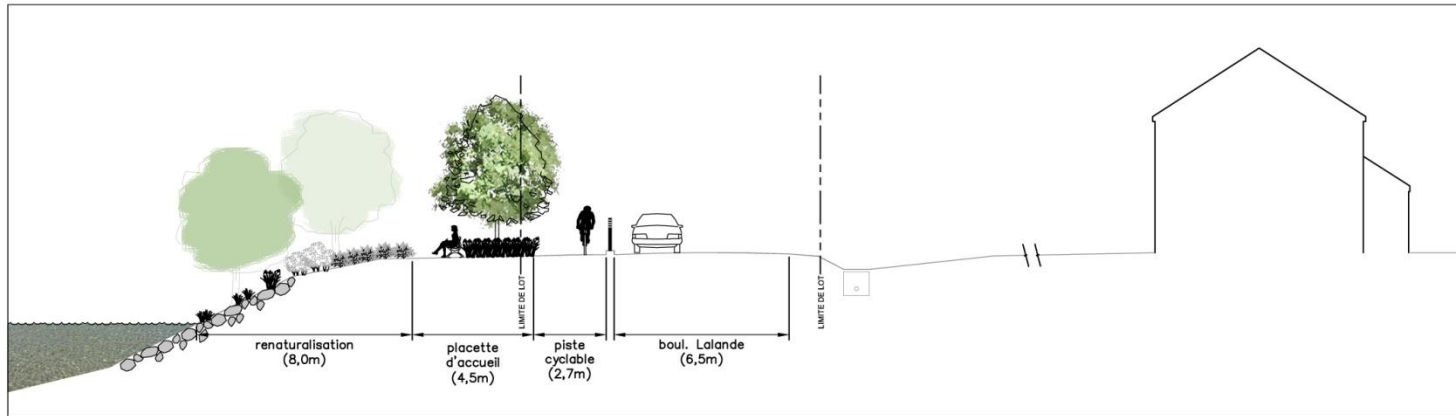
# DEVELOPMENT WORK OF THE WATERFRONT – SECTION 1



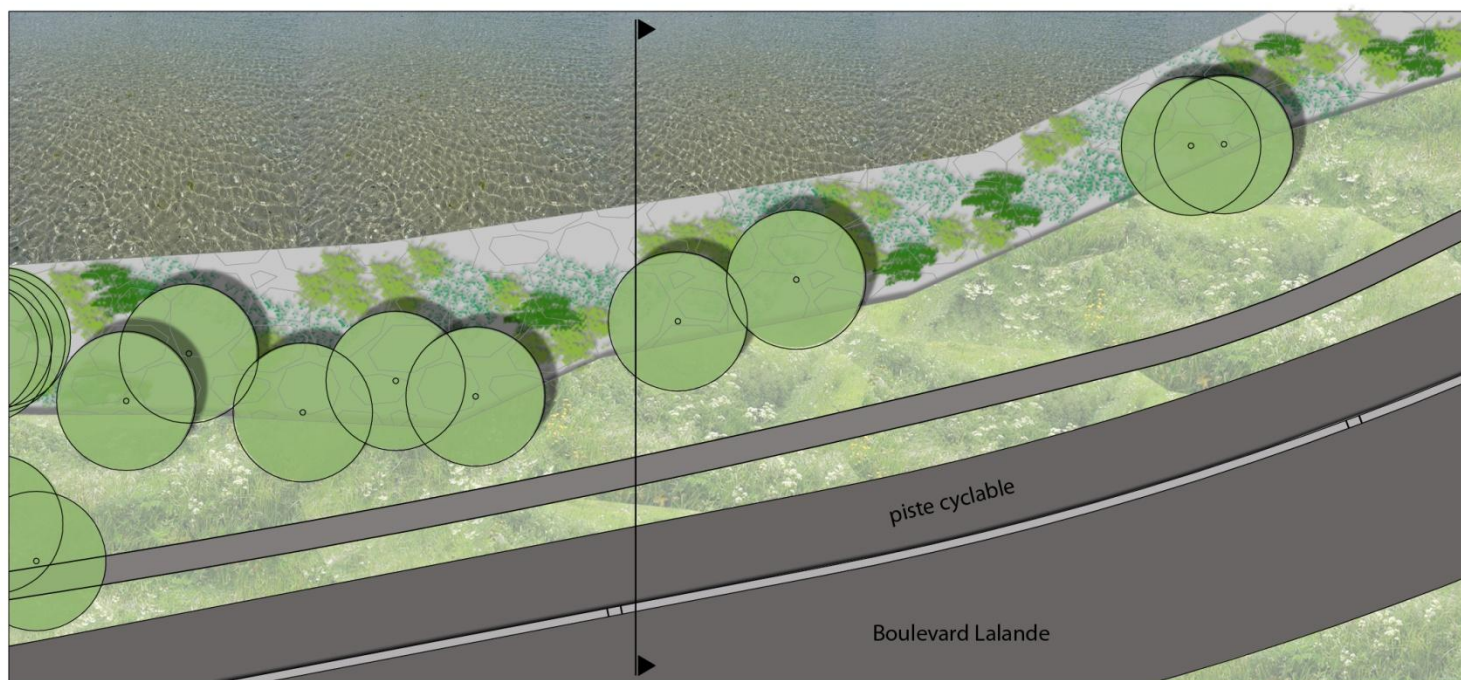
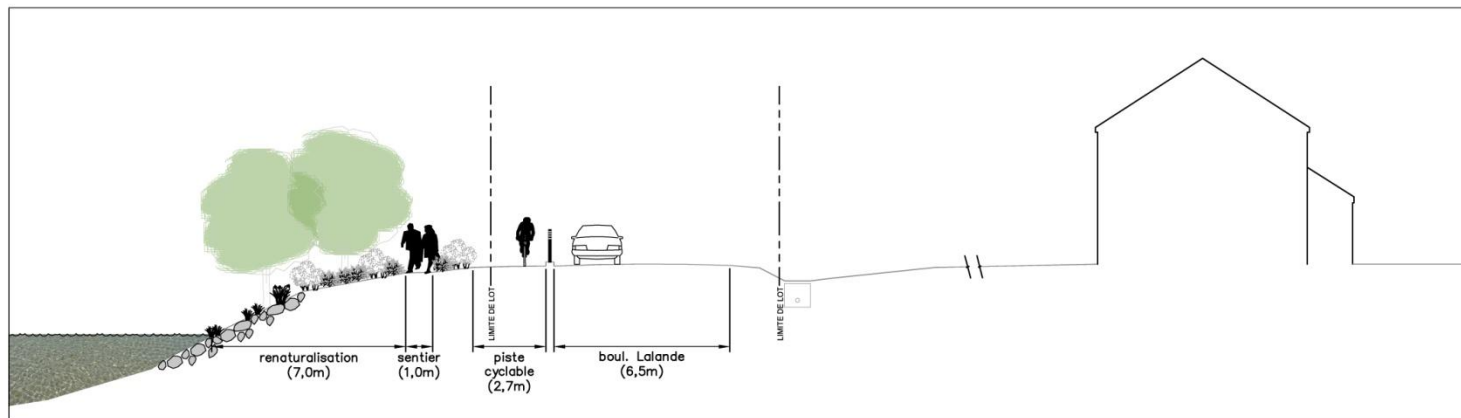
## DEVELOPMENT WORK OF THE WATERFRONT – SECTION 2



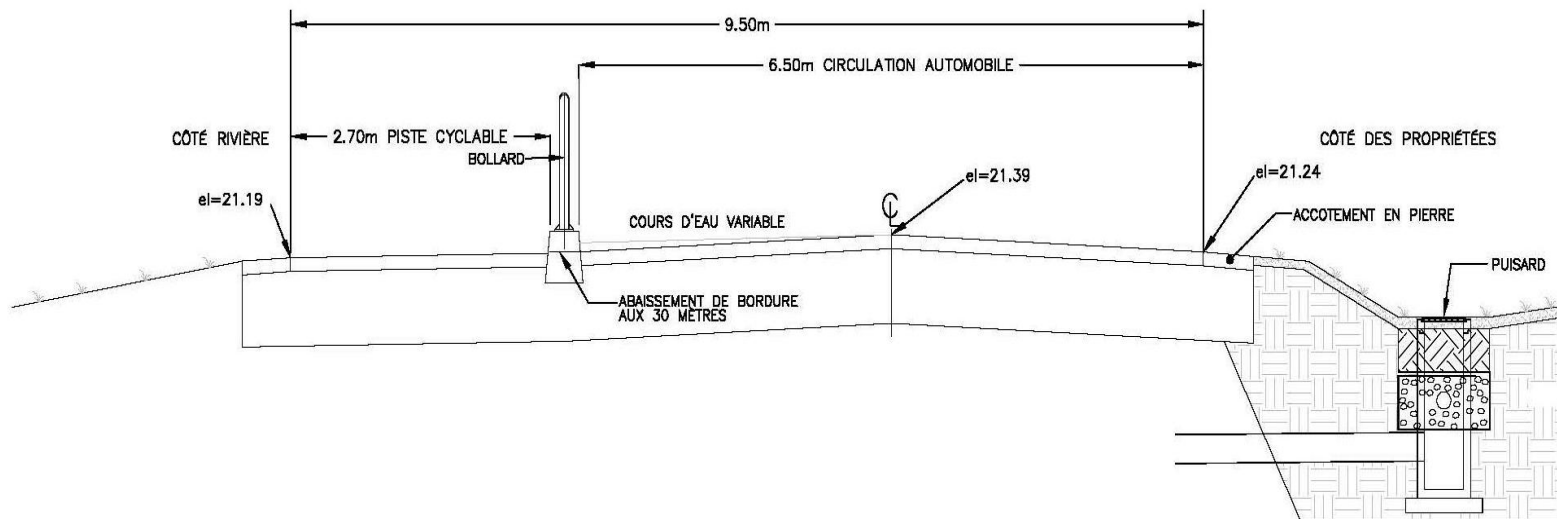
## DEVELOPMENT WORK OF THE WATERFRONT – SECTION 3



## DEVELOPMENT WORK OF THE WATERFRONT – SECTION 4



# DEVELOPMENT WORK OF THE WATERFRONT – ROADWAY SECTION



## **CONCLUSION**

**The borough of Pierrefonds-Roxboro wishes to proceed with Lalande Boulevard repair work on a distance of about one (1) kilometer.**

**This repair work will:**

- 1) Reduce flood risks and adverse effects done by ice;**
- 2) Facilitate the movement of residents during floods;**
- 3) Correct the stability and erosion problems of the riverbank;**
- 4) Improve the riverbank's environmental quality;**
- 5) Improve the riparian habitat;**
- 6) Have no impact on the environment and the hydraulic system of the Rivière des Prairies.**