

| STAR2CS INTERREG PROJECT |

THE OISE VALLEY :

WHAT FORMS OF RESILIENCE TO ADDRESS FLOODING?

Oise-les-Vallées Urban Planning Agency

November 2019

PART

1

SITE-SPECIFIC RESILIENCE
ANALYSIS

RESILIENCE
GUIDELINES

3

QUAI DE L'ÉCLUSE
AT VENETTE

[P R E A M B L E]

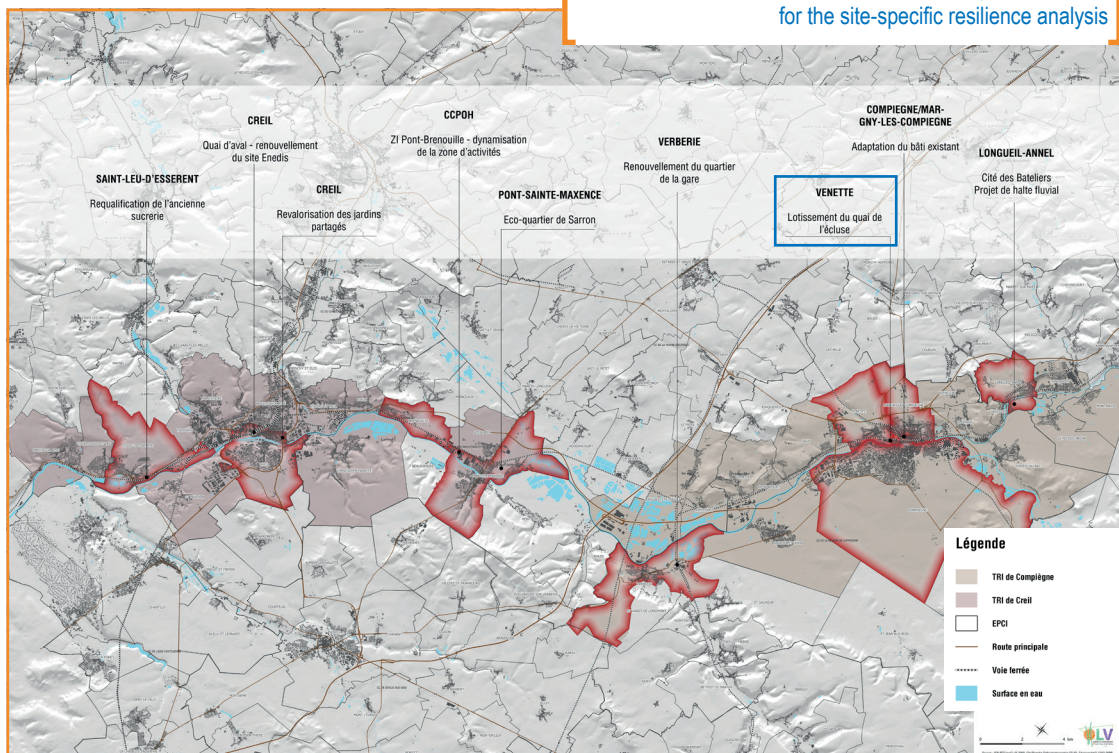
The Oise-les-Vallées Urban Planning Agency began assessing the valley's resilience to flood risk for the European Interreg STAR2Cs Project. The aim of the agency's involvement in this European project is to give further consideration to explore local development and spatial planning opportunities to address flood risk. To achieve this, three steps are currently being researched:

- 1 **Town planning resilience:** How can sites in flood-prone areas, subject to additional restrictions from differing stakeholder opinions, be planned and developed.
- 2 As individual flood resilience plans do not cover that of an entire region, step two focuses on a larger scale, especially **the resilience of roads and utilities** that keep the region up and running.
- 3 Finally, the agency wants to introduce a **methodological decision-making tool designed for various planning stakeholders** (councillors, technicians, developers, private individuals, etc.) to support the regional planning and development process.

With support from Architect, Éric Daniel-Lacombe, the urban planning agency produced nine case studies located along the Oise Valley during the first part of the project.

Using these nine case studies, the aim is to produce an overall development plan for the Oise Valleys area, based on geography, landscapes as well as land-use and economic activity, not forgetting mobility, which is the key topic in this particular area. The development plan is, and will be, adaptable and incremental. It will help foster a collective awareness of the regional resilience process with respect to flooding.

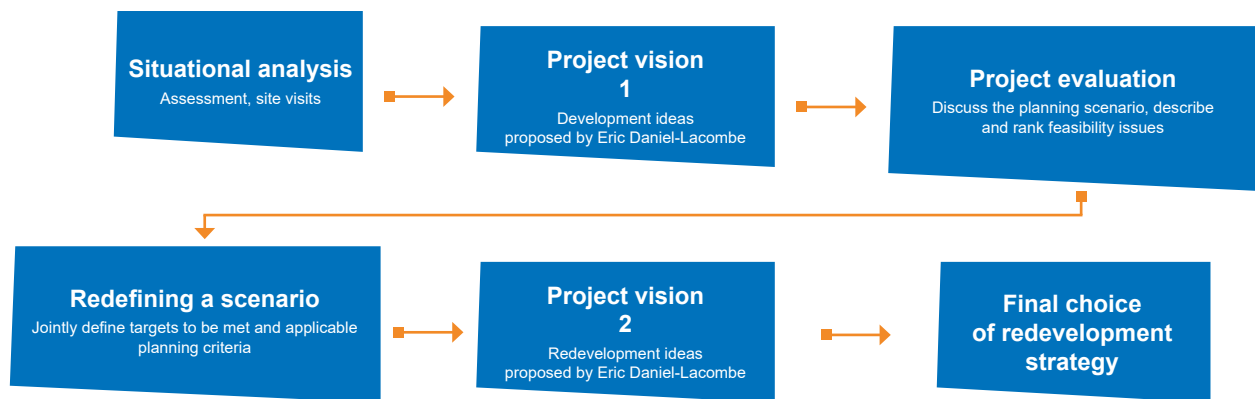
Study site locations for the site-specific resilience analysis



Given the major waterway project to connect the Seine and Escaut rivers with the Seine-Nord Europe Canal and dredging/re-profiling the River Oise to meet European standards (MAGEO), the mid-Oise area has a chance to forge a unique identity for itself to the north of the Ile de France region, while adapting to climate change.

We have devised development scenarios for each of the nine case study situations that provide a fresh, new insight. A series of initial development scenarios for each site was presented to the relevant stakeholder then revised to provide a new version incorporating feedback and analysis (often contradictory). Each scenario is intended to become a potential vision to transform the site in question by seeking to make it less vulnerable to flood risks.

[Adopted approach]



| Publication Manager: Pascale POUPINOT |
| Editors: Imane FEDAILI, Daniel DUTHOIT |
| Design and production: |
| Clothilde MORIAT, Virginie MORIN-MAUBOUSSIN |
| Photo credits (excl. specific credits): ©Oise-les-Vallées |

[CONTENTS]

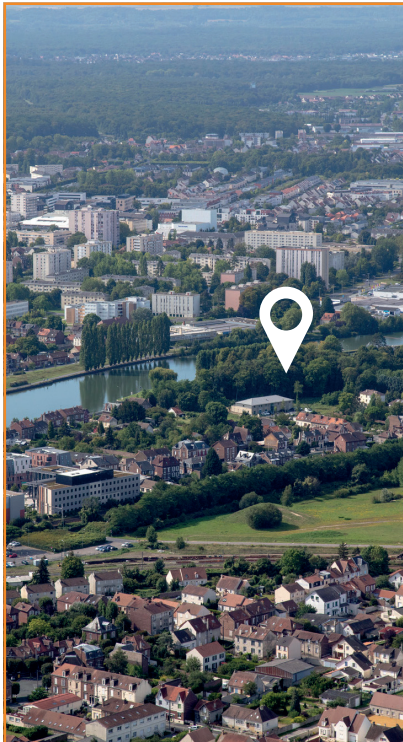


1 Site presentation & challenges	[4]
2 Development proposals	[6]
3 Project evaluation and feasibility	[10]



1

SITE PRESENTATION & CHALLENGES



Presentation of local area



The town of Venette has a population of roughly 3,000 people and sits on the right bank of the Oise, east of Compiègne. It has been part of the Greater Compiègne Regional Authority (ARC) since January 2000.

Like its neighbour, Margny lès Compiègne, Venette has good transport links with major trunk roads. Railway lines do, however, cut through it dividing up the urban area.

The town's name is thought to come from "venare" which means "to hunt" and is perhaps the reason a royal hunting lodge was built here.

Site issues



The plot is owned by the ARC and connected to utilities to be ready for construction, although it only contains one building; a community centre for young people with autism.

The first planning proposal for the housing estate was off-market, with overly large plots and considerable restrictions related to the PPRi. The project was subsequently mothballed. In 2014, the developers were also consulted and, broadly speaking, their development plan that was too dense in terms of homes and, more importantly, was not profitable for the ARC.

The municipality now wants to sell the site and develop plots.

Challenges and goals

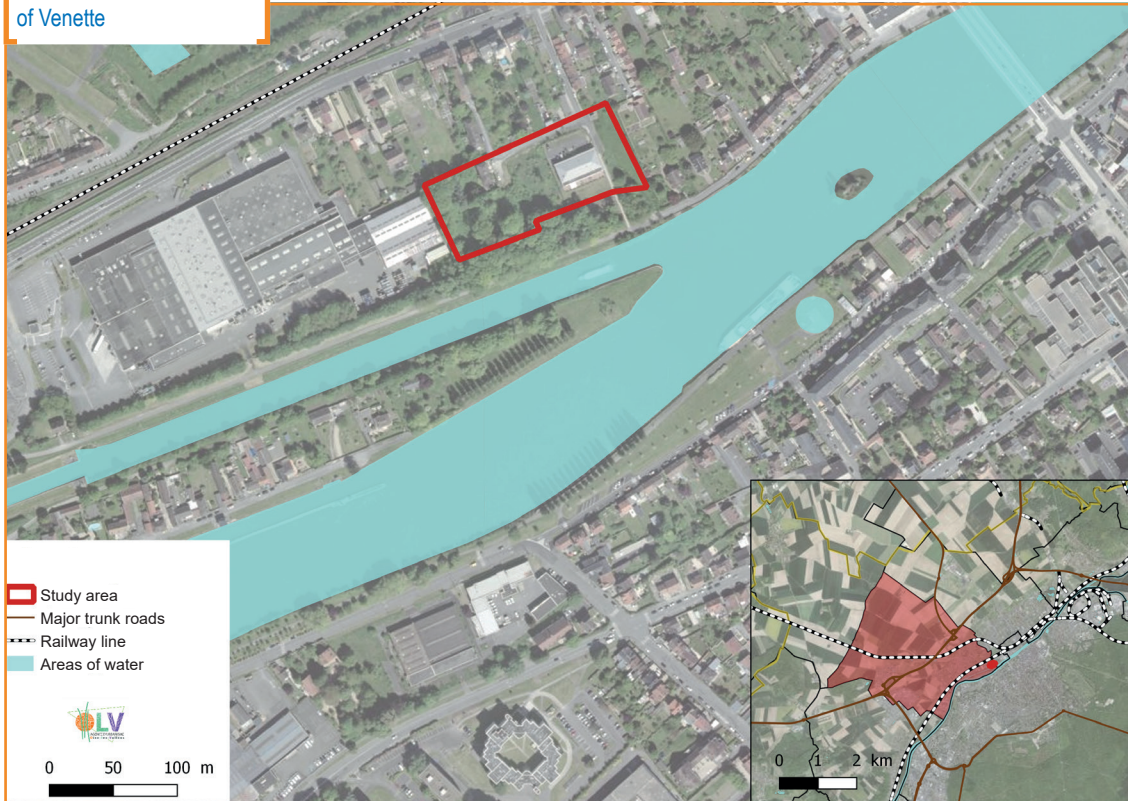
Build on, and use, undeveloped plots

Connect the site to Compiègne city centre and the Jaux-Venette retail park



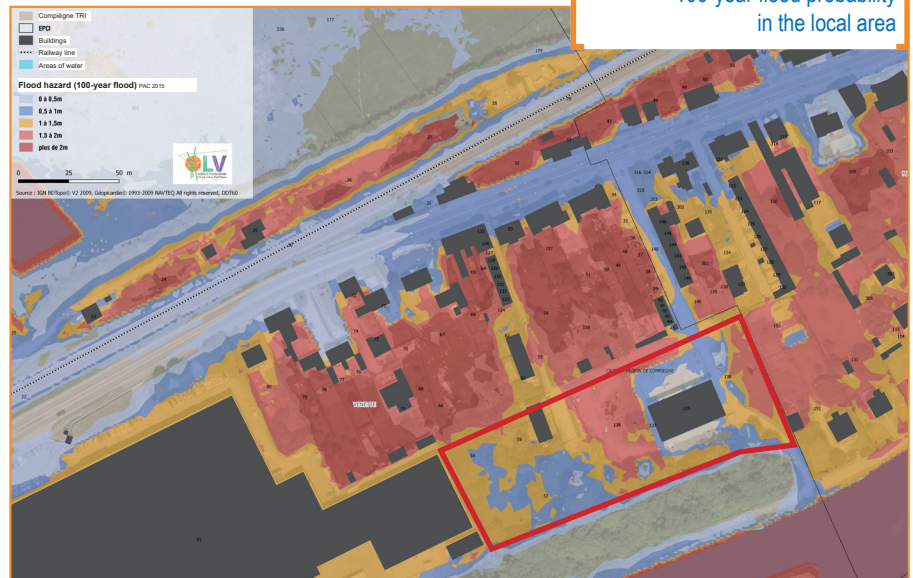


Site location in the town of Venette



100-year flood probability in the local area

The flood hazard map modelled in 2015 on 100-year flood events shows that this site is highly flood-prone. Indeed, it can experience floods of up to 2.5 m deep. The existing building, however, is built on an embankment and is safe from flooding. The site also sits behind a mound that extends from a low flood-defence wall designed for 30-year floods.



Summary of stakeholder positions



Stakeholder	Local authority	State
Main priority	Regenerate the Quai de l'Écluse	Protect the local community from flooding
Priority impact	Willingness to sell plots / generate added value	Land that cannot be built on due to PPRi regulations
Priority-related risk	The flood risk to the local area has not been properly considered	Property assets remains 'stuck' without development potential
Risk effect	Heightened vulnerability of site and assets	Town loses its appeal

2 DEVELOPMENT PROPOSALS



NB: All images featured on this page are taken from the presentation by Eric Daniel-Lacombe at a workshop on 2 April 2019, entitled *Inventive analysis for Oise-les-Vallées*



THE ARCHITECT'S OPINION

Eric Daniel-Lacombe



You reach Venette just after Petit Margny, by following the right bank of the River Oise. It is the third study site which had previously been identified for a small housing development. However, no compromise could be found between the economic factors and flooding constraints. Consequently, just one institution for people suffering from autism was built. Plans for the site must involve denser development than was initially the case. If you drive along the waterfront at the Quai de Venette or better still, walk, you'll see a row of well-designed houses to cope with flooding. The different facades with the mouldings on their gable ends are really interesting features. But, what is outstanding is the way in which the three storeys are arranged like terraces, that gradually become more watertight and safe from flooding:

- gardens at the natural ground-level,
- a one-metre high raised road with car parking,
- then the ground floors of the houses another 50 cm higher, safe from flood waters reaching roughly 1.5 m in depth. Access to the houses is by a set of steps which form a pattern on the facades.

As such, each house is protected from flooding yet stays connected to the road, promenades and private gardens. The experimental site plot runs parallel to the River Oise towpath. A dune, or mound, planted with tall trees separates it more than it protects it from the river, providing a buffer zone for the built-up area if the Oise bursts its banks. New apartments or houses can be built in a line along this promenade. The views of the river are superb and the houses

would mainly face south. The signature, or cross-section, of the building process is taken from the aforementioned terraced layout (garden, road, house) of the existing houses. The ground level remains as it is to accommodate natural defence mechanisms, while car parking will be raised to form a large first step connecting to sloped walkways (5% slope) leading to the front doors. The walkway floor is 1.5 m above the ground, corresponding to the average height of flood waters. The houses will be arranged in a line facing the river and the various styles of roofs proposed by local planning regulations will complement the gable ends like an array of simple shapes turned towards the water. Everyone can muse about the river while keeping a close eye on it.

With room for roughly 40 homes, facing south to the River Oise, the plan is economically viable. The commercial dimension is underpinned by the quality of the surrounding scenery and the nearby railway station. The first level will have dual-aspect dwellings while steps to the first floor provide access to three homes, with the middle having a split-level layout, fitting under the roof ridge. In the evening, the high windows will light up the living rooms like lanterns, recalling that life on the banks of the Oise has always existed.

Building these new, flood-proof homes steadfastly designed to safeguard human life or prevent damage, is tailored to the Oise Valley which needs to seek solutions tailored to its growth. It would subsequently demonstrate the existence of regulatory guidelines to reduce risks while changing mindsets. The guidelines should lead to various experi-

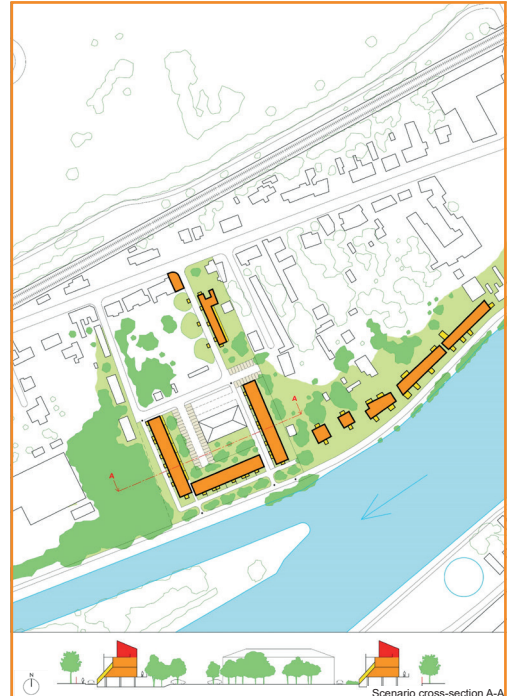
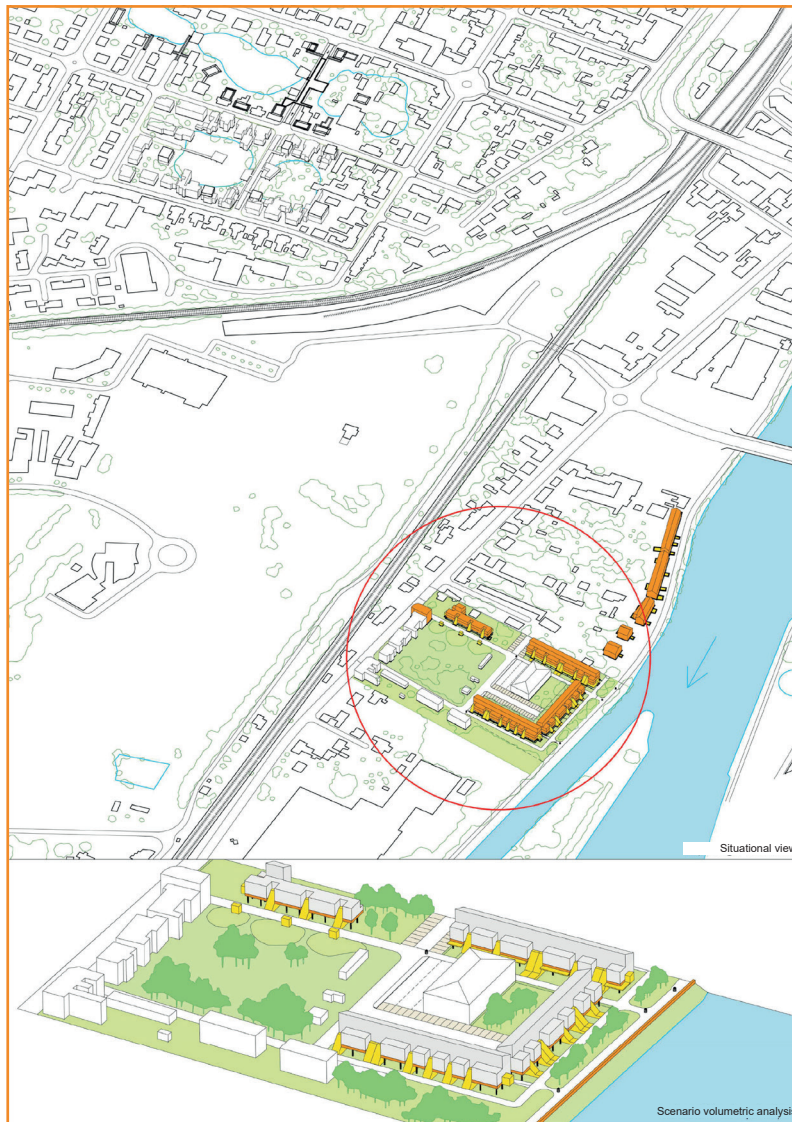
ments in the valley, probably focusing as much on new-builds as redesigning old homes. These practical experiences should be considered as a shared perspective to protect local communities (and animals) from catastrophic flood events and, as such, adapt the town and its infrastructure in the long-term.

The flood hazards map mirrors the lie of the land. The colours of the water indicate hollows in the land in contrast to a horizontal line of the highest expected flood waters, reaching 50 cm in depth (blue), 1 metre (orange) or 1.5 to 2 metres (red). These efforts to invent solutions between the actual ground surface and this future set on the floors of homes gives rise to a series of scenarios. We can dig a little deeper to fit the car parking under the buildings or locate them on an embankment to shorten the lengths of the ramps on a 5% slope, leading to the front doors. The houses could be positioned parallel to the river so that all the windows face the water and are, as such, better placed to protect us from the rising waters. Alternatively, why not place the buildings perpendicular to the Oise forming a passage between them to let the floodwaters pass and symmetrically return to the riverbed as the flood subsides? In each case, we must, of course, consider the risk but also days when the sun beams down making our contact with the ground a real joy.



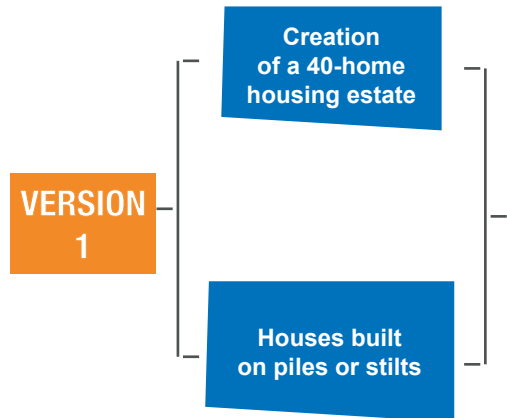
VERSION 1

This first draft of proposals was presented to councillors and technicians at a bilateral meeting to fine-tune the outcomes. In this initial proposal, Eric Daniel-Lacombe decided to design a housing estate comprising 40 homes.



Scenario cross-section A-A
© Eric Daniel-Lacombe

PRINCIPLES



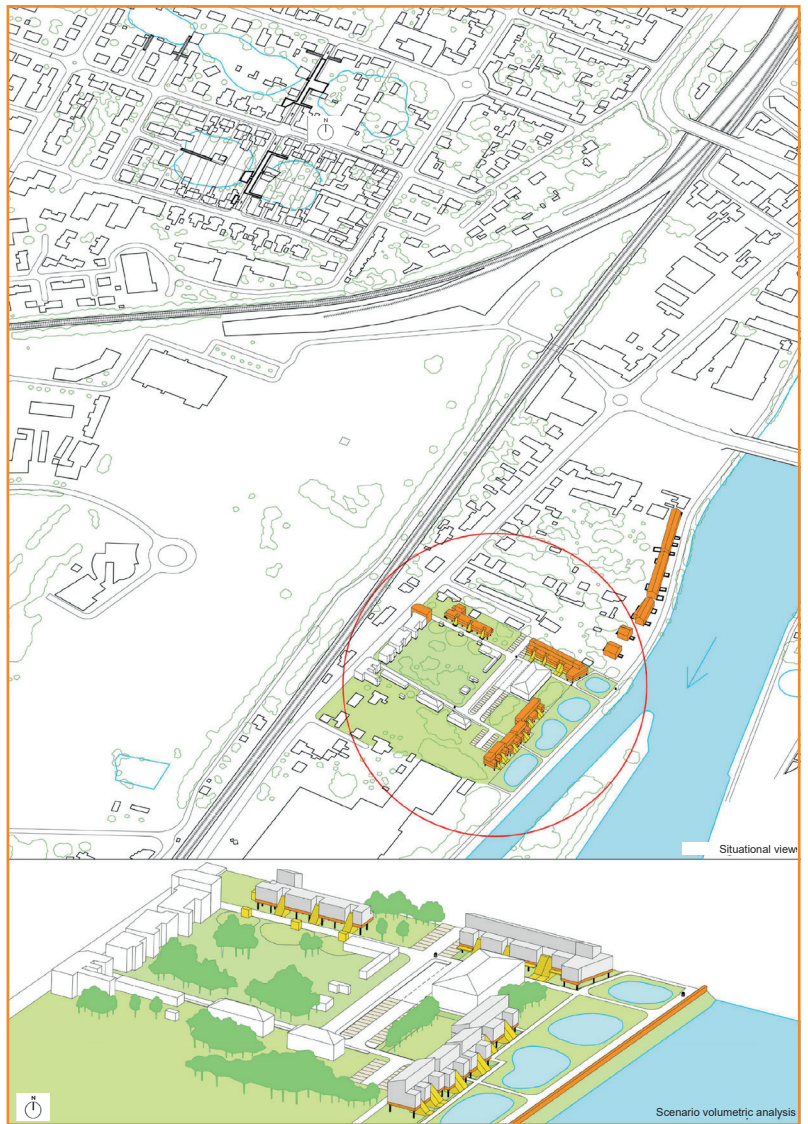


VERSION 2



Scenario cross-section A-A
© Eric Daniel-Lacombe

The Greater Compiègne Region (ARC) stated that the architect's current proposal could achieve a financial balance but advised it to stick to the ARC-owned plot and abandon plans for the banks of the River Oise which is N-zone listed. The site belongs to the State and is currently occupied by a flood bank. As a result, Eric Daniel-Lacombe offered to develop the second scenario for the new boundary, by planning to build some 30 homes, mainly 2 and 3-bedroom multi-family dwellings (just 10% detached houses).



Situational view

Scenario volumetric analysis

© Eric Daniel-Lacombe

LIMITATIONS

Project footprint too large

Construction on specific government-owned plots

VERSION 2



3

PROJECT EVALUATION & FEASIBILITY

Both versions proposed by Éric Daniel-Lacombe seek to avoid a certain number of detrimental effects in the event of a flood. Each of them lessens or eliminates potential damage and is likely to generate benefits for the local area, or even the entire town. In most cases, however, these risk reduction measures are not cheap, in financial, technical or human resource terms.

SWOT analysis

WITHIN THE PROJECT	OUTSIDE THE PROJECT
STRENGTHS Positive aspects justifying project benefits	OPPORTUNITIES Aspects to capitalise on the project environment
<ul style="list-style-type: none"> The idea is to retain a sense of continuity in the local housing that illustrates good planning practice in relation to water and flooding. The ground floors of the houses would be separated from a public space/lane by 3 steps while the gardens would sit a further 7 steps below this Infrastructure, with a walkway connecting with all front doors, access ramps and a shared car park that can be flooded 	<ul style="list-style-type: none"> Potential for the town to attract more people to the local area Presence of water as a landscape feature
WEAKNESSES Negative aspects to be improved	THREATS Obstacles that may impede project development
<ul style="list-style-type: none"> Investors must be found 	<ul style="list-style-type: none"> Property on the site belongs to various owners (municipality, State)

The SWOT analysis combines the project's strengths and weaknesses with surrounding opportunities and threats to help define a development strategy.

Advantages / Disadvantages by stakeholder

	Advantages	Disadvantages
Local authority	Regenerating the neighbourhood and local area	Investors must be found to fund the project
State	-	Increasing amenities in the local area
Users/Residents	Potential to have a new waterside neighbourhood	Housing estate prices may be high

Methodological details

Resilience indicators

Several aspects must be specified in terms of resilience indicators.

Firstly, it should be noted that the 5 criteria defined to study project resilience were proposed by Oise les Vallées and are the result of its methodological choice alone. We have identified:

1. **An environmental benefit:** The project offers an environmental advantage by respecting nature and preserving biodiversity, etc.
2. **A social benefit:** The project offers a social and human advantage inasmuch as it provides a service to its users and improves the quality of life for the local community
3. **An operational benefit:** The project offers an operational advantage, making buildings technically capable of resisting floods and able to cope with flood hazards, etc.
4. **An economic benefit:** The project offers an economic advantage in its ability to generate income, to attract business and retail while fostering tourism, etc.
5. **Scenic benefits:** The project can slip seamlessly into the local area by considering the specific features of each area and delivering aesthetic benefits, etc.

Explanation of the choice of scoring system

The scenarios were scored on a scale of 1 to 10, with 0 being the lowest score and 10 the highest.

The choice of scoring method is clearly subjective and is in no way definitive. The aim is partly to trigger discussion and reactions.

Score	Category
1-2	Very poor
3-4	Poor
5-6	Fair
7-8	Good
9-10	Very good

The purpose of the scoring system is to compare the three chosen development scenarios:

- The first corresponds to the current position. This refers to the state of the land as it is now, prior to any development taking place.
- The second corresponds to a hypothetical planning scenario where flood risk has not been considered. As such, this refers to development plans that comply with current urban development guidelines but which do not prioritise resilience.
- The third scenario is proposed by Eric Daniel-Lacombe and featured above.

Aspects to consider for resilience

Benefits	environmental	social	operational	economic	scenic
Scenario 1 "Current situation"	2	2	8	1	3
Scenario 2 "Ignoring the risk"	3	7	5	4	7
Scenario 3 "Eric Daniel-Lacombe"	6	7	7	2	7

Level of satisfaction

Private individual	State	Local authority
2	8	3
7	3	7
7	6	7

