POLITECNICO DI TORINO



Master of Science

Architecture For Heritage

A.Y. 2025/2026

Reusing of Industrisl Heritage "a Proposal for Cartiera Crespi, a Peripheral Productive Site"

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Abstract

Along the Olona river, in the narrow valley behind Varese, stands a factory that has been silent for more than thirty years. the former Cartiera Crespi occupies a site continuously in production , first a water mill, then a comb factory, finally a paper mill ,until the machines stopped in 1990 and the building was left to the vegetation. privately owned since 2012 and protected by no heritage designation, it remains abandoned, while proposals for its future have repeatedly been announced and never realised. this thesis asks how can an abandoned industrial paper mill be reused while preserving its heritage value? Drawing on municipal archival documents, regional cartographic data and site analysis, it reconstructs the mill's ownership history, its spatial organisation, and the environmental and regulatory conditions that constrain any intervention. Four international paper mills ,Verla in Finland, Fyansford in Australia, Museo della Carta di Pescia and Cartiera di Maina Inferiore in Italy ,are then examined comparatively to establish how buildings of the same type and setting have been preserved, reused, and governed, and what made those processes succeed or stall. the comparison yields a set of transferable strategies concerning programme and the treatment of industrial memory, together with the conditions each requires. on this basis, the thesis proposes a reuse strategy for the former Cartiera Crespi that seeks to return the building to public use while keeping legible the industrial identity that gave the valley its form.

Introduction

Some buildings are put where they are for a reason, and when the reason goes, they are left stranded. The former Cartiera Crespi is one of them. it stands in a stretch of the Olona valley so narrow that building there only ever made sense because of the water , and once the water no longer mattered, neither, apparently, did the building. What is left is abandoned but not mute. the sheds, the concrete tower, the old foreman's house now half-hidden behind riparian vegetation still describe how life and work were organised here. This is not an isolated case. the Olona valley was once the industrial heart of the province of Varese, and its river is lined with the remains of the factories that made it so. their abandonment is a shared condition, and it raises a question larger than any single building: what should become of industrial architecture when the industry has gone, and when the resource that justified its location no longer holds it there? At Castiglione Olona the question has gone unanswered for over thirty years. while the factory still worked, the town was already climbing the hillside and leaving the difficult valley floor behind ,and that distance has never closed. Proposals have not been lacking; a car park, a hotel, a cultural hub have all been imagined, and none has been built. the obstacles turn out to be less architectural than structural. yet the valley floor is no longer empty: the cycle path now passes directly beside the factory, carrying people through a landscape the mills once monopolised, and leaving the building stranded between a past that is finished and a present that has begun without it. This thesis begins there ,with a building that has outlived its purpose, and a valley that is quietly finding a new one.

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01

HISTORICAL AND CULTURAL CONTEXT

1.1 the olona valley and its industrial evolution in Lombardy

1.2 the roll of water in shaping industrial settlement

1.3 historical development of former Cartiera Crespi and timeline

1.4 Historical documentation

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1.6 Industrial memory and heritage significance today present condition, reasons for inactivity, and future potential

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1.1 industrial evolution in Lombardy and Olona valley

The decisive transformation began in 1861 in Italy, when Italy was unified under the Kingdom of Sardinia, creating a single national state and market. This political consolidation enabled the modernization of infrastructure, railways, roads, and communications, and accelerated industrial growth, especially in northern regions such as Lombardy. These changes provided the conditions that later supported the industrial development of areas like the Olona Valley. Marking the transition from a pre industrial economy based on small watermills and artisanal production to an industrial system characterized by mechanized factories and large scale output.[1]

New railways and road networks reduced the isolation of the valleys and made it possible to transport heavy machinery and raw materials. At the same time, the spread of steam power and the import of mechanical paper making machinery, many of which were designed in England and France, allowed Italian manufacturers to increase production and reduce costs.[2]

During this period, northern Italy and in particular Lombardy, Piedmont, Veneto and Tuscany, became the core of national production. Lombardy distinguished itself as one of the most advanced industrial regions, thanks to the dense network of rivers such as the Olona, the Adda and the Lambro, which continued to supply water for mechanical and chemical processes. Factories proliferated along these valleys, forming linear industrial corridors marked by small towns and continuous manufacturing settlements.[1]

In this geography, the Olona Valley played a key role as a regional system in which the paper, textile, and metal industries coexisted and interacted. the organization of production also evolved.

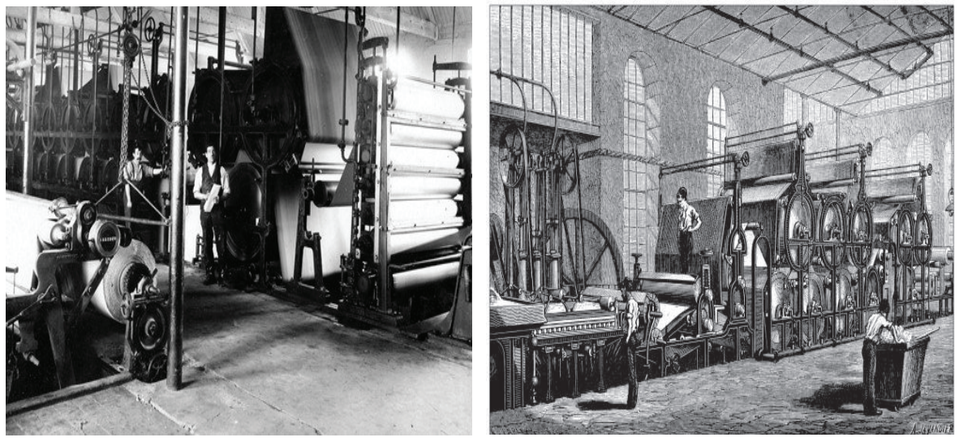


Fig 01.paper industry in 18th century

While artisan mills relied on a master paper maker and apprentices, industrial paper mills required specialized divisions of labor. separate departments for pulping, pressing, drying, and finishing were created, and the number of workers increased significantly. The introduction of new machinery changed the nature of work, reducing the physical intensity of manual labor while at the same time creating the need for technical knowledge and maintenance skills. Technological innovations were accompanied by a gradual shift from textile based to wood based production.[2]

The increasing shortage and high cost of cloth, combined with the growing demand for printing and packaging, forced manufacturers to adopt wood pulp imported from northern Europe. This transition also marked Italy's entry into international trade networks for raw materials and equipment.[2]

Economically, the second half of the 19th century saw the emergence of large, vertically integrated companies capable of controlling the entire production chain from pulp preparation to the manufacture of finished paper.

from the late eighteenth century, the valley evolved from an agrarian environment into one of Lombardy's earliest and most continuous industrial landscapes. the valley follows the course of the Olona river, whose continuous flow throughout the year provided a stable source of hydraulic power and determined the location of the first manufacturing settlements, a source of mechanical power, a transportation axis, and a unifying geographical element linking a dense sequence of mills and factories. the morphology of the area, narrow and deeply incised valley, favored the creation of a linear system of mills and workshops built along the riverbanks, directly dependent on water resources for energy and production.[9]

during the late eighteenth and nineteenth centuries, the natural characteristics of the Olona valley fostered its transformation from an agricultural landscape into a dynamic industrial corridor. the numerous watermills scattered along the river were gradually converted into mechanical workshops and paper factories, marking the onset of regional industrialization.[9]

Economically, this model contributed to Lombardy's rise as one of Italy's most dynamic regions. the paper industry became one of the most representative sectors of the Olona valley, both for its technological evolution and its impact on local communities. by the early twentieth century, factories such as the Cartiera Crespi in Castiglione Olona embodied the culmination of this transformation ,integrating traditional hydraulic infrastructures with modern industrial

architecture.[6][10]

However, the process of industrial growth was uneven. while northern regions benefited from modernization and access to capital, the central and southern districts experienced stagnation. this regional disparity reflected broader economic imbalances within post unification Italy and contributed to the concentration of industrial power in the north. by the turn of the twentieth century, Italy's paper industry had achieved both technological modernization and spatial consolidation.

Water power continued to play a supporting role, particularly in valleys like the Olona, where it complemented the introduction of electricity and small hydroelectric plants. the integration of mechanical innovation with local landscape features created a distinctive industrial environment that blended historical continuity with modernization. [1] In this sense, the evolution of the Italian paper industry mirrors the trajectory of Italian industrialization as a whole: rooted in strong regional identities, dependent on the ingenuity of local craftsmanship, and ultimately shaped by the integration of technology into the existing landscape. the Olona valley, with its dense sequence of hydraulic plants and paper mills, stands as a paradigmatic case of this evolution, where water, geography, and human labor converged to produce one of Lombardy's earliest and most enduring industrial systems.

1.2 The role of water in shaping industrial settlements

Water resources, including rivers such as those in the Olona valley, have been the main driver of industrial location in Italy, especially for industries with low capital to labor ratios, such as textiles, clothing, and wood. these industries were heavily dependent on water power, which shaped the spatial distribution of industrial activity during this period.[4]Water and rivers played a vital role in the industrialization of Italy in the period 1871–1911. the abundance of water, especially in the absence of modern power transmission systems, was an important factor in determining the location of manufacturing activities. rivers and waterfalls provided a year round source of energy, which was essential for driving machinery in factories. this was especially important in areas such as the northern edge of the Po valley, where Alpine runoff compensated for the lack of summer rainfall. [4]

The Olona valley is consistently cited as one of the regions where watercourses played a decisive role in the early stages of Italian industrialization. The availability of river energy made it possible to develop complex factory typologies, including multi-level "vertical" buildings such as the historic wool and paper factories that once lined the valley.[8] Similarly, sites like the former Cartiera Crespi benefited from their direct relationship with the river, which provided the water neede for both power generation and industrial operations.

In this way, the Olona valley stands as both a geographical and historical testimony to how water shaped Lombardy's industrial landscape, transforming natural energy into a foundation for local identity, economic growth, and architectural heritage.[5]

1.3 Historical development of the former Cartiera Crespi

The origins of the site date back to the late 1700s, when the Olona river was already lined with small hydraulic mills. the river's constant current made this territory one of Lombardy's earliest "productive corridors," where grain mills and mechanical workshops slowly gradually into industrial plants. archival maps from the nineteenth century show the site functioning as a small grain mill, owned by the Castiglioni family, it passed to the Bianchi family in 1857.[6] [10]

Phase1 (Industrial Birth): From mill to comb factory to paper mill (1920s–1950s): The site entered its modern phase in the early twentieth century. from 1920 , having lost its orogin function as a mill, it housed the Ambrosini comb factory (fabbrica di pettini), a water-powered works producing combs for the nearby textile industry. The brick complex visible today, built around 1930, reflects early twentieth-century industrial architecture: large arched openings, continuous windows for natural light, and a practical layout that follows the course of the river. In 1950, during the postwar economic boom, the plant was converted to paper production by the Crespi company, originally from Vigevano, the name the site still carries. Consistent with the valley's long hydraulic tradition, its operation continued to depend on the Olona, drawing on the river for its industrial processes even as many factories elsewhere shifted entirely to electricity. during these years the Cartiera Crespi offered work and opportunity to the people of Castiglione Olona, becoming a familiar presence in the community throughout the postwar industrial period .[10]

Phase 2: Golden Years and Early Shadows (1950s–1970s): The post war years marked the industrial maturity of Cartiera Crespi. like the great paper making districts of Fabriano or Vicenza, Lombardy experienced a boom in demand for office and school papers. the Olona valley prospered. the Crespi plant thrived on this synergy, investing in a continuous paper making machine in the mid 1950s , a technological leap that increased production speed and quality, but after a while the same water that once sustained the valley's prosperity had become a liability: the river was increasingly polluted, and environmental controls grew stricter. meanwhile, the Italian paper industry was undergoing structural transformation. major firms such as Cartiera Miliani Fabriano and Rossi Vicenza dominated national markets, equipped with advanced chemical pulp

technologies and global export channels. smaller, family run factories like Crespi's could not sustain the rising costs of modernization. also the historical documentation of the Cartiera Crespi, reconstructs nearly four decades of continuous development, modernization, and administrative regulation spanning from 1954 to 1992 [7][9]. collectively, these municipal and technical records trace the gradual transformation of a traditional mid 20th century paper mill into a progressively modernized and regulated industrial facility that will be discussed further.

Phase 3: Decline and Silence (1980s–1990s): By the 1980s, the Olona valley entered a period of progressive industrialization. hydraulic mills[1], once symbols of innovation, became obsolete in the age of large electric motors and automated production lines. the Bianchi family attempted minor modernizations but faced insurmountable financial and logistical challenges. the factory's location , squeezed between the river and a steep embankment , prevented expansion, while the old brick sheds could not support heavier machinery.

Also, environmental legislation of the late 1980s and lacking external investment, production slowed until it finally stopped entirely in the early 1990s. workers were dismissed, and the once vibrant complex fell silent.[6] [7] [9]

Phase 4: Changing the owner, rediscovery and memory (2000s to date): The building situation between 2000 and 2010: according to the official website of La Provincia Di Varese, the most immediate visual proof of this is a dutch urban explorer's photographs taken inside the Cartiera Crespi in 2010. they were shot during a road trip in Italy that year and capture an abandoned paper mill that had been deserted since 1990. by the time the big machines had disappeared from it the old bleaching chemicals had still been found lying on the floor in the chemical storage room. these images portray the original fully intact dark corrugated asbestos-cement roof, the courtyards slowly beginning to be reclaimed by vegetation, a well preserved structural shell and nothing that would indicate anything was happening at the site by way of intervention or maintenance; in short, they afford the closest glimpse possible into the way the structure looked in the run up to 2010.[12]

It also mentioned that previous administrations had already laid plans for key projects for redevelopment of the area, indicating that perhaps discussions or proposals for future use of the area had taken place prior to 2010 under a prior administration , but none had resulted in any physical intervention. In practice it means between 2000 and 2010 the building existed in a state of complete, uninterrupted physical abandonment with three documented characteristics: 1. Unsafe and completely open; the sheds, grey walls and underground spaces were used as shelters by homeless and undocumented immigrants for an extended time. these informal occupations took place throughout the entire post 1990 period and continued into the 2000s, showing that the building was unprotected and had been without fencing, security or access control during the entire 10th decade (1990 through 2000).

2. All of the machinery had been taken out by the time of closure from the factory and the only things left are chemicals. all the equipment used in the making of paper had



Fig 02.Dangerous chemicals that remain spread and unclear

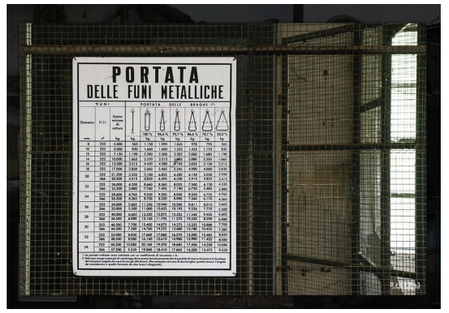


Fig 03.Instructions card inside building



Fig 04.Different views of the factory from interior and exterior showing abandonment since 2000

1 Hydraulic mills were early industrial systems that used the force of flowing water to power production. They played a fundamental role in the development of manufacturing activities along river valleys, such as the Olona Valley. From the late twentieth century, technological advances, particularly electric motors and automated machinery, made these systems inefficient and difficult to adapt, leading to their gradual abandonment. Today, hydraulic mills survive mainly as industrial heritage sites, museum facilities, or are reused in small-scale hydropower plants and limited artisanal production, rather than as large industrial facilities.

been taken out at some point after it had closed down (after 90's) but, because of hazardous material left behind, there are still traces of bleach chemicals on site.

3.Progressive vegetation takeover. the vegetative growth began to completely take over the buildings where they would happen to be located. the initial pictures from 2010 indicate that some vegetation had begun to establish itself in those locations. by 2020, complete takeover of the buildings had occurred and the naturalisation of the



Fig 05.Vegetation growing in an uncontrolled way

Although it is not officially documented but it could be seen from the satellite photos on google earth that by the year 2010, the original eternit/cement-asbestos corrugated roof sheets were entirely intact, representing both a structural covering and a growing environmental hazard as they degraded over time.[12] [10]



Fig 06.Comparison between 2 satellite image from google earth (left picture for the year 2012 and the right one for 2015) that shows the only intervention after changing the owner which was not a step toward regeneration but a minimum compliance measure carried out by an owner with no intention or capacity to do anything more with the site.

Unfortunately, there is no official documentation of the 2000-2010 period for this building in any detail beyond these fragments. no article, no municipal record before 2010 is publicly indexed. the 2010 photographs are the only direct evidence, and they show a building that had been left completely untouched and unmanaged for twenty years , exactly as it was when the Crespi company walked out in 1990. the decade 2000–2010 was also characterized by complete municipal inaction despite awareness of the problem. Initiatives suggests proposals existed by previous administration on paper, but the three year silence that the Crespi family owners cited as their reason for selling in 2012 actually points back to roughly 2009 as when the last real attempt at negotiation broke down , meaning the failure to act was already well rooted in the 2000s. for the academic year 2010-2011, the faculty of design at the Politecnico di Milano collaborated with the Comune di Castiglione Olona to carry out design research projects (this collaboration directly produced the 2013 **Machado Bastos thesis** on the Cartiera Crespi , the only academic work dedicated entirely to the building, That is used widely in this thesis as a reference). these projects aimed to explore new interpretations of the site and its history, which includes both artistic and industrial aspects. they also aimed to provide ideas for revitalizing its cultural and tourist image.

As a result, working in a place like Castiglione Olona, which has significant historical and artistic value and offers interesting ideas for a university to help refresh its image, presents a real

opportunity. [6]

The former Cartiera Crespi remained privately owned after production ceased in the 1990s. In its 2009 survey of disused areas, the Province of Varese recorded the site as privately held and completely inactive (its closure attributed to the company's bankruptcy) with no requalification plan adopted and no public incentives in place for its recovery, while nonetheless recognising the complex as a site of industrial-archaeological value. [13]

its underground spaces had long been shelter for homeless people and undocumented migrants, but even they had by then abandoned it. Inside, an atmosphere outside of time prevailed, enlivened only by touches of color from graffiti by unknown writers on the walls of the sheds.

Many youtubers upload YouTube videos ,detailing the numerous abandoned factories that are located on the banks of the Olona river. In this videos they describes old factories left to decay, as well as the asbestos left behind, particulate matter being blown into the environment, and used oil soaked into the ground , including the Cartiera Crespi situated in Castiglione Olona.

The Cartiera Crespi has been closed for thirty years. though according to the documents of manucipality of the comune that published in 2023, some extraordinary maintenance steps are being taken and the site is no longer qualified as fully abandoned, there is no detaile published about the preservation of it.[15]

the industrial buildings are overgrown with vegetation, and much of the machinery previously used to produce paper is no longer located inside the factories, but some of the chemicals used to bleach the paper remain on-site.

A clear vision is that the progress of the site during these years from one phase of inactivity to another, until at least 2020, was evidenced by only one major physical intervention; the roof remediation that appeared on satellite images dated from 2013 - 2015. this remediation, however, was not evidence of a commitment on the part of the owner to redevelop the site, but complied with the minimum performance standards imposed on all property owners in accordance with current provincial regulations.

The following images show interior and exterior views of the former Cartiera Crespi, documented by an Italian YouTuber during a visit to the site in 2020.





Fig 07.State of abandonment of the factory and interior decays (staircases , the offices and rooms)

Fig 08.State of abandonment of the factory and interior decays (growing vegetation)



Fig 09.State of abandonment of the factory and interior decays (view from the control room to the production hall (the long coridor) to evaluate the workers performance)



Fig 10.State of abandonment of the factory and interior decays



Fig 11.State of abandonment of the factory and interior decays (storage space)



Fig 12.State of abandonment of the factory and exterior decays (vegetation growing)



Fig 13.State of abandonment of the factory and interior decays



Ex Cartiera Crespi





1857

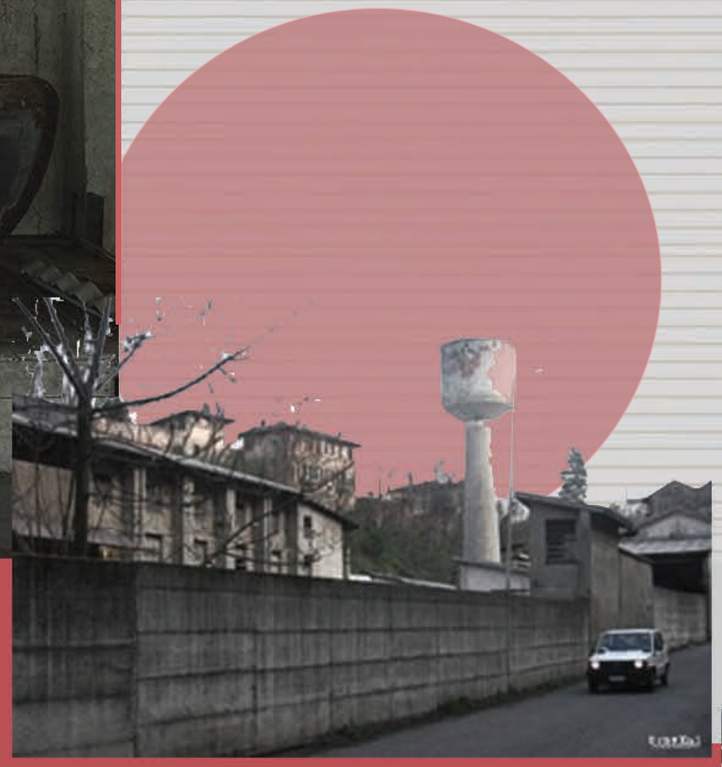
First owner: the site functioning as a small gristmill, operated by local families who used the river's flow to turn wooden wheels and millstonesthe. mill owned by the famous Castiglioni family was built. then in 1857 ,it passed into the hands of the Bianchi family

1920

Ambrosini (comb factory): Around 1920 the site loses the milling function and becomes the Ambrosini comb factory

1930

the factory expanded its production to include technical and wrapping papers, later adding printing and packaging materials Under the Bianchi family, Cartiera Crespi entered its most stable and productive phase.



1950

From 1950 onward, paper production replaces combs and "Signor Crespi, originally from Vigevano, starts the paper mill," which becomes the well known Cartiera Crespi

1990

The Bianchi family attempted minor modernizations but faced insurmountable financial and logistical challenges. ,The factory's location prevented expansion. and also lacking external investment, production slowed until it finally stopped entirely



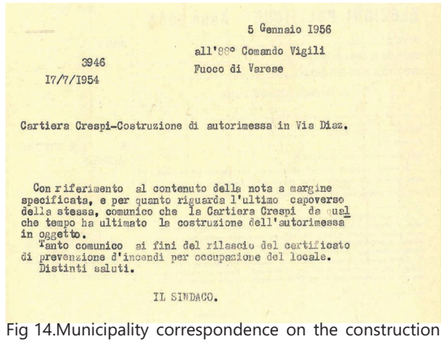
today

the remains of the factory are listed among the sites of industrial memory of the Olona Valley. although no official restoration detail has yet been published, some maintenance steps are being taken and the site is no longer qualified as fully abandoned the Cartira has become a point of reflection in the wider discourse on heritage and adaptive reuse in Lombardy

1.4 Historical documentation

A continuous history of development and construction activity on factory complex site can be found by looking back through several archives at many different parts within this factory complex over many years. a selection of the key documents that were sent to the author via direct contact with the comune of Castiglione Olona, alongside the corresponding timeline are presented in the following section.

1954-1956 **Early Expansion and Service Structures:** The earliest phase, dating from 1954 to 1956, focused on the construction of auxiliary infrastructure, including a small garage and perimeter enclosure walls made of prefabricated concrete panels



5 Gennaio 1956

3946
17/7/1954

all'Spe Comando Vigili
Fuoco di Varese

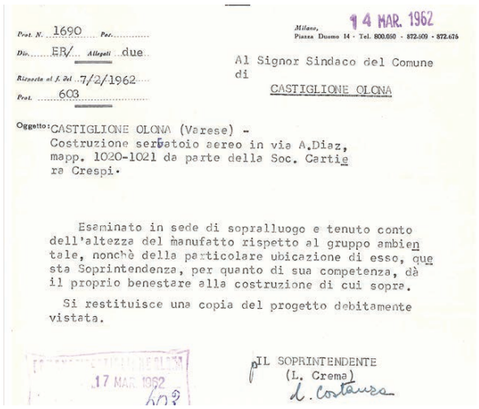
Cartiera Crespi-Costruzione di autorimessa in Via Diaz.

Con riferimento al contenuto della nota a margine specificata, e per quanto riguarda l'ultimo capoverso della stessa, comunico che la Cartiera Crespi da quel che tempo ha ultimato la costruzione dell'autorimessa in oggetto.
Tanto comunico ai fini del rilascio del certificato di prevenzione d'incendi per occupazione del locale.
Distinti saluti.

IL SINDACO.

Fig 14.Municipality correspondence on the construction of a garage at Cartiera Crespi, 1956.

1960-1964 **Large-Scale Factory Expansion and Modernization:** A huge phase of expansion, during which Cartiera Crespi submitted plans for large scale modernization of the factory complex. This included the enlargement of production areas, demolition of obsolete buildings, and reorganization of industrial functions. Municipal authorization was granted in December 1960.



Prot. N. 1690 Pos.
Div. ER/ Allegati due
Risposta al f. del 7/2/1962
Prot. 603

Milano, 14 MAR. 1962
Piazza Duomo 14 - Tel. 800.650 - 872.609 - 872.676

Al Signor Sindaco del Comune di
CASTIGLIONE OLONA

Oggetto: CASTIGLIONE OLONA (Varese) -
Costruzione serbatoio aereo in via A.Diaz, mapp. 1020-1021 da parte della Soc. Cartiere Crespi.

Esaminato in sede di sopralluogo e tenuto conto dell'altezza del manufatto rispetto al gruppo ambientale, nonchè della particolare ubicazione di esso, questa Soprintendenza, per quanto di sua competenza, dà il proprio benestare alla costruzione di cui sopra.

Si restituisce una copia del progetto debitamente vistata.

17 MAR 1962

IL SOPRINTENDENTE
(L. Crema)

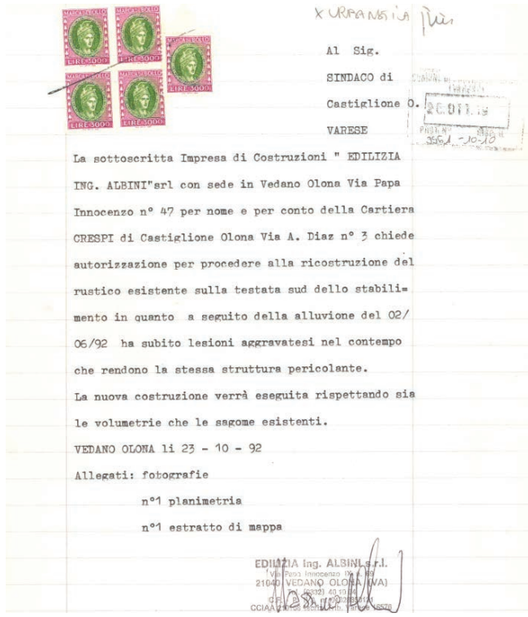
Fig 15.Superintendence correspondence on the proposed water tank at Cartiera Crespi, 1962.

1960-1964 **Large-Scale Factory Expansion and Modernization:** A huge phase of expansion, during which Cartiera Crespi submitted plans for large scale modernization of the factory complex. This included the enlargement of production areas, demolition of disused buildings, and reorganization of industrial functions. Municipal authorization was issued in December 1960. The year 1962 marked a major turning point in the modernization of Cartiera Crespi. Fire-prevention inspections revealed serious safety deficiencies, including unsafe methane systems, wooden staircases, inadequate ventilation, and insufficient emergency exits. As a result, the factory was required to modernize its infrastructure through the installation of iron staircases, firefighting systems, emergency exits, and upgraded gas installations. During the same period, the company constructed a 29-meter-high reinforced-concrete water tower to support industrial operations and fire protection. Because of its strong visual impact on the landscape, the project required approval from the Lombardy Heritage Authority before receiving municipal authorization. In 1963–1964, modernization works continued with the construction of a retaining wall along the Olona River to protect the industrial site from flooding, the upgrading of heating and methane systems, and the realization of a large industrial warehouse of approximately 750 square meters, which received final occupancy authorization in December 1964.

1965 **Perimeter and roofing works:** two metal canopies (one located at each end of the industrial complex) were built to serve as roofs for those final addition projects. The roofs were constructed using Eternit asbestos-cement panels, which further solidified the process of modernizing and consolidating the entire industrial complex.

1992 **Large-Scale Factory Expansion and Modernization:** The final archival sequence was completed when a significant amount of flooding occurred in the month of June 1992. Portions of the Cartiera Crespi property were damaged to the extent that reconstruction became necessary. The requests for reconstruction of those portions of the complex requested that the existing building volumes and forms be preserved, demonstrating that both historical continuity and continued legal acknowledgment of the industrial complex were acknowledged as existing into the late 20th century.

Archival photographs, that can be seen further ,were taken to document the flood damage of 1992, showing despite these protective measures, the site still suffered severe flood damage in 1992, nearly 30 years later, suggesting that the 1963 embankment was ultimately insufficient to withstand the intensity of that flooding event.[7] [10]



URGENTISSIMA

Al Sig.
SINDACO di
Castiglione O.
VARESE

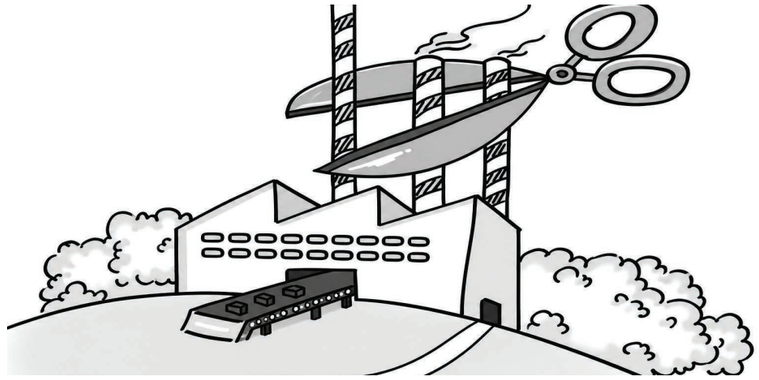
La sottoscritta Impresa di Costruzioni " EDILIZIA ING. ALBINI"srl con sede in Vedano Olona Via Papa Innocenzo n° 47 per nome e per conto della Cartiera CRESPI di Castiglione Olona Via A. Diaz n° 3 chiede autorizzazione per procedere alla ricostruzione del rustico esistente sulla testata sud dello stabilimento in quanto a seguito della alluvione del 02/06/92 ha subito lesioni aggravatesi nel contempo che rendono la stessa struttura pericolante.
La nuova costruzione verrà eseguita rispettando sia le volumetrie che le sagome esistenti.
VEDANO OLONA li 23 - 10 - 92
Allegati: fotografie
n°1 planimetria
n°1 estratto di mappa

EDILIZIA Ing. ALBINI s.r.l.
21040 VEDANO OLONA (VA)

Fig 16. Request to reconstruct part of Cartiera Crespi damaged by the 1992 flood, Castiglione Olona



Fig 17. documentation images of the flood damage of 1992 provided by the comune of the Castiglione Olona



1.5 Causes of decline and abandonment of the Cartiera Crespi and the valley : While the Olona Valley once represented one of the most productive and technologically advanced industrial districts in Lombardy, its progressive decline reflects a combination of structural, economic, and environmental changes that affected small and medium-sized paper mills throughout Italy. because no official documentation answer directly the ownership question of this specific building after 2012 , the reasons for decline during this years and ,as a result, abandonment must be understood through the broader scholarly and institutional framework that applies to the entire class of sites to which the former Cartiera Crespi belongs. Below some reasons are discussed:

1. Industrial Restructuring and Technological Obsolescence: The Italian paper industry became more capital-intensive in the early 20th century. the capital-intensive nature of continuous machines, chemical pulping and large plants required investment that was impossible for small family/owned paper mills. Cartiera Crespi was one of those small riverside mills that could not meet the cost of modernization and went out of business.[14]

2. Energy Transition and the limits of the site: Another source of pressure arose from the transition from hydraulic power to electricity and heat as the driving forces. the plant had improved its facilities up to a point, such as introducing the continuous paper machine in the mid 1950s, while the design of the mill made further development impossible. this was because the site could not be expanded due to the presence of the Olona river on one side and the steep bank on the other side. as a result of this limitation, the plant could not take the advantage of its existing machinery, which was widely used in gold, silver, and paper milling at that time. the use of water was

no longer effective as a source of energy, although it could still be utilized for the production of electricity, as suggested later by different projects related to the area.[14]

3. Environmental Regulation and Spatial Constraints: The end of the twentieth century saw new regulations on the environment and water use driving up the costs of running factories that polluted the river, while the fact that the valley was narrow and could flood also limited the site. in addition, the mill reported on numerous instances of flooding damage and building of an embankment along the Olona, while having to ad here to a 150-metre limit regarding river protection or strict water use requirements. all of these factors discouraged investment and led to shifting production to a distance site on the plain where it would be easier to do business.[7][14]

4. The structural oversupply of abandoned industrial sites: The situation of the mill, as well as that of the wider context in which it is located. de-industrialization and transfer of production have created the situation in which many Italian industrial sites are abandoned without owners or uses, subsequently creating a permanent imbalance between the number of available disused sites and the real need to reuse them. therefore places such as the former Cartiera Crespi are not just left in inactivity because of local circumstances, but because of the fact that there exist a great number of other abandoned buildings, which have left wide spaces in the potential of their redevelopment.[3]

5. Economic Globalization and Market Shifts: The last decades of the century modified the paper industry in Europe. The emergence of global supply chains, imports of pulp and competition from export-oriented companies resulted in losing the place of small paper mills which exist mainly to satisfy local markets. The geography of the production of paper changed from rivers and small mills to large centralized plants. Consequently, by the 90s all the paper mills in Olona Valley were closed. however, the region still possesses a significant cultural heritage in the form of industrial ruins.[14]

6. Absence of timely Reuse Strategies: Lack of a timely approach to reuse: Although regional and provincial surveys have identified unused industrial sites as a potentially effective way of reducing land take and promoting the reuse of buildings, in the case of Cartiera Crespi this acknowledgment never materialized into action: according to provincial statistics, the site is completely inactive, no redevelopment scheme has been approved, and no incentives are being provided (Provincia di Varese 2009). The gap between planning frameworks and implementation of their provisions has resulted in the decline of this complex, which was recognized as a heritage site only later due to the documentation and activities of the Ecomuseo della Valle Olona.[10][14]

According to the rules of provincial land use, municipalities can propose reclamation plans to the owners of abandoned areas. the Cartiera Crespi was included in the list of abandoned areas, but it remains unreclaimed ,the property has not been used at all, with no requalification scheme implemented and no recovery measures adopted.[14]

The industrial buildings and sites in the area were seldom met with a coherent plan for reuse or preservation immediately after their closure. It was much later that people recognized these previously industrial areas as being historically and architecturally important, mainly due to the initiatives implemented by Ecomuseo della Valle Olona and other regional activities in the field of cultural heritage. nevertheless, most of this work consisted of documenting and researching the issues. at the moment, the former Cartiera Crespi is partially falling apart, with its buildings disappearing under plants and destruction. this situation exemplifies the problems related to matching industrial heritage and sustainable development.

Overall we can say that the abandonment of the former Cartiera Crespi factory has no monofactorial explanation. all the reasons, such as technological obsolescence, site constrains, environmental regulations, globalization, and lack of post-industrial development planning, have to be taken into account. the decline of paper production in the Olona valley is symmetrical to the story of many other European industrial regions, where the local and water-based methods of production were replaced by large factories based on electricity and integrated into the market at the global level.

At present, the Cartiera Crespi is a reminder of this evolution process, as well as all other paper mills that once existed in the valley. Its preservation and further adaptation for use



Fig 18. Interior view

might not only help to preserve parts of Lombardy's industrial heritage but also to analyze the interaction between industry, environment, and history in modern times.[10] [14]

1.6 Industrial heritage significance for present, obstacles to reuse, and future potential

The former Cartiera Crespi in Castiglione Olona is one among the very few reminders of the industrial past that characterized the Olona valley. even in its dilapidated condition, the factory demonstrates the way the community interacted with the river as it still represents the remains of an era when paper production was closely related to water power and human labor .[6][9]

From the perspective of heritage, the site is worth a lot in different ways. the factory is, first of all, an embodiment of real industrial architecture, secondly, is a type of hydraulic paper mill typical for the Olona valley, and finally, is of great importance for the families who worked there. Yet, despite this significance, almost nothing has been done to preserve or reuse it. several reasons explain this inaction:

1. Ownership and responsibility are unclear. After the closure in the early 1990s, the property changed hands several times, and no single public or private actor has taken the lead. for a small municipality like Castiglione Olona, the costs of intervention are high compared to available resources.

2. The location itself creates difficulties. The factory stands between the river and a steep slope, with little space for parking or access. any redevelopment would be needed to respect environmental restrictions. old paper mills often have contaminated materials like ink, oil, and the residual bleaching chemicals. these things must be cleaned up by experts before the site can be used again.

3. There is a gap between recognition and action. People know about the site, but no one is acting. while the old paper mill is listed in local heritage reports like the Ecomuseo della Valle Olona, these lists don't protect the building or provide money. the former Crespi paper mill is currently just a documented ruin that hasn't been included in any real plan for reuse.

4. Finally, the main problem is money: Converting industrial buildings into museums or cultural centers requires long-term funding and continuous visitors. The area already has similar spaces nearby, so attracting a stable audience would not be easy. without a clear business plan, private investors are reluctant to engage.

Even so, the site still has real potential. It could play a role in the wider regeneration of the Olona valley if seen as part of a network rather than an isolated ruin.

how do people see this area? how is this area remembered?

When it comes to thinking about former Cartiera Crespi, the modern opinion seems to be portraying both good and bad aspects of it. for instance, in terms of its relation to local industrial memory, the Ecomuseo della Valle Olona describes the plant as a former provider of jobs and means for people in Castiglione Olona and stresses that the buildings being deserted still remind of the past way of life in the region.[10]

The Ecomuseo also highlights that the new relationship between the site and the Valle Olona cycle path, as well as nearby cultural, nature, and sports attractions, represents other good points of the area.

However, the former Cartiera is an area of serious dereliction and one of the main factors negatively influencing the landscape of the historic centre. hence, it can be concluded that the Cartiera is perceived as both one of the important representatives of the local industrial past as well as a source of contemporary problems.

From these observations, it can be concluded that the old Cartiera Crespi actually has great potential because of this tension; in other words, although it retains its historical significance, the site itself is not in a position to utilize this historical value in the modern world. Instead of being just a reminder of the past, its redevelopment can offer the old site a chance to engage in a more active way with the settlement, the river and the leisure infrastructure of Olona valley.



Fig 19. Piccolo Stelvio road that is also used by bikers as a challange



Fig 20. Piccolo Stelvio road in Olona valley



Fig 21. Sloped piccolo Stelvio road view

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- figure 7-8-9-10-11-12-13: Too Speed youtube channel, Cartiera Crespi - Castiglione Olona (VA) - esplorazione. (Link of the images)
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- figure 19 : Varese News, Cicloamatori all'assalto del "Piccolo Stelvio". accessed November 5 , 2025. (link)
- figure 20 : https://turbolento.net/prodotto/piccolo-stelvio-delloltrepo/ .accessed November 5 , 2025.
- figure 21 : Piccolo Stelvio , Castiglione Olona, Spunti di visita. (Link)

02

SITE AND ARCHITECTURAL ANALYSIS

2.1 introduction to Lombardy and Castiglione Olona

2.2 territorial analysis : Map layers

2.3 Valley section

2.4 **The site within the Olona flood hazard framework**

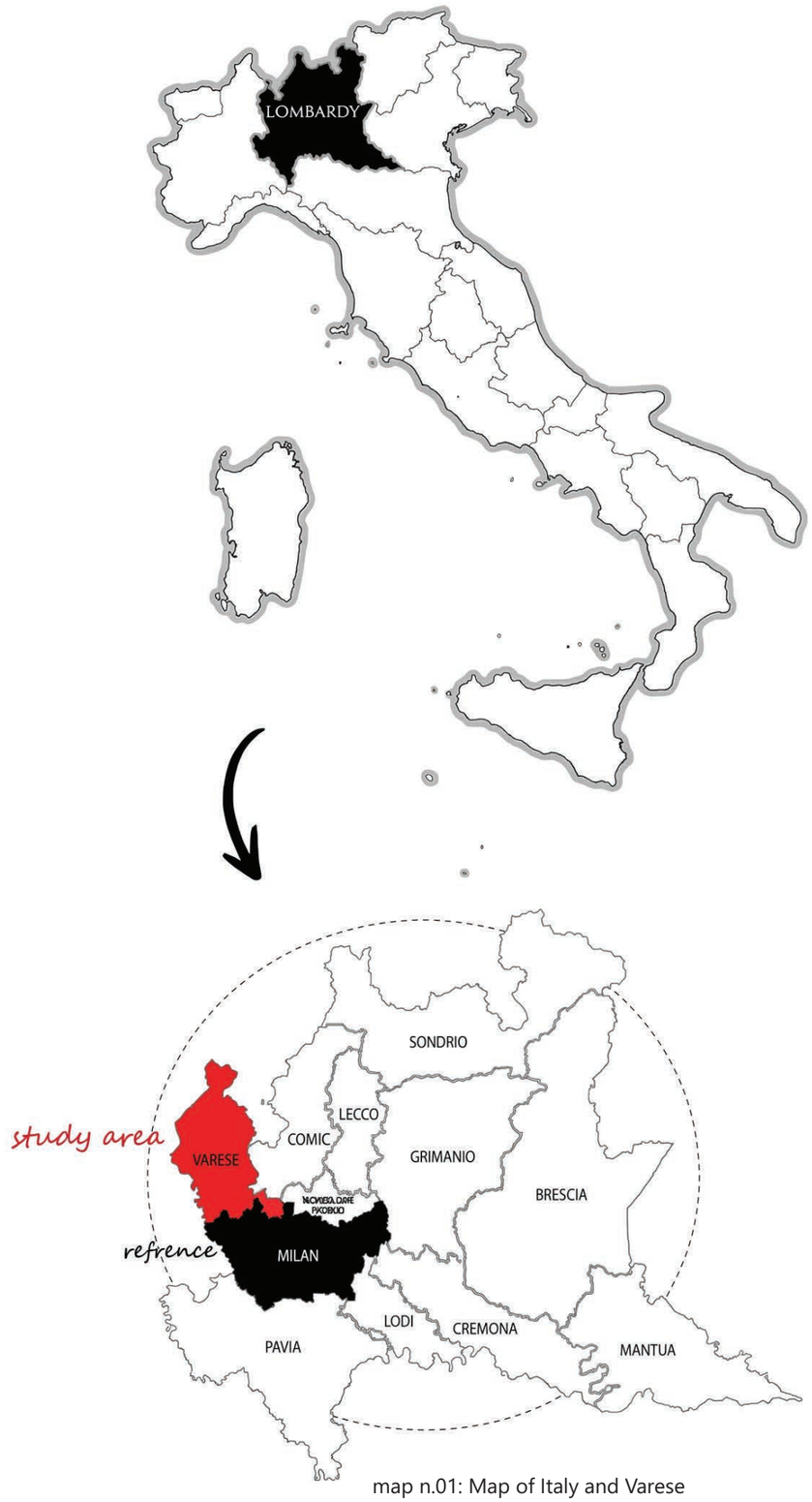
2.5 SWOT analysis

2.6 The role of adaptive reuse in contemporary heritage practice, Comparative case studies

2.7 referenceS

Lombardy

Lombardy is a region of northern Italy, bordered by Switzerland to the north and by Piedmont to the west, Trentino, Alto Adige and Veneto to the east, and Emilia Romagna to the south. It is divided into twelve provinces, Bergamo, Brescia, Como, Cremona, Lecco, Lodi, Mantua, Milan, Monza e Brianza, Pavia, Sondrio, and Varese, with Milan as its capital. Its rivers flow southward to the Po, among them the Ticino, Adda, Oglio (with the Mella and Chiese), and Mincio, and the region holds several of Italy's largest lakes, including Garda, Maggiore, Como, Iseo, and Varese, together with the smaller lakes of the Brianza. Although it covers less than a tenth of the national territory, Lombardy is the most populous Italian region and one of its leading centres of both industry and agriculture: its population concentrates in the industrial cities of the northern plains and foothills, while the irrigated Po plain supports rice, cereals, maize, sugar beet, and fodder for dairy and beef farming, with fruit, vines, and grazing land across the foothills and Alpine zones.[15]



map n.01: Map of Italy and Varese

Castiglione Olona

Castiglione Olona is situated in the province of Varese in the pre-Alpine region of western Lombardy. Its geographical significance dates back to the period of the Roman empire as it served as the key connector between Milan and the Alpine passes. from approximately 1000 AD onwards, the area was owned by the Castiglioni family, which originally was from Milan and maintained ownership for many centuries; when the last representative of the family, Count Ludovico Castiglioni, died in 2000, the family palace was passed to the city and turned into a civic museum.

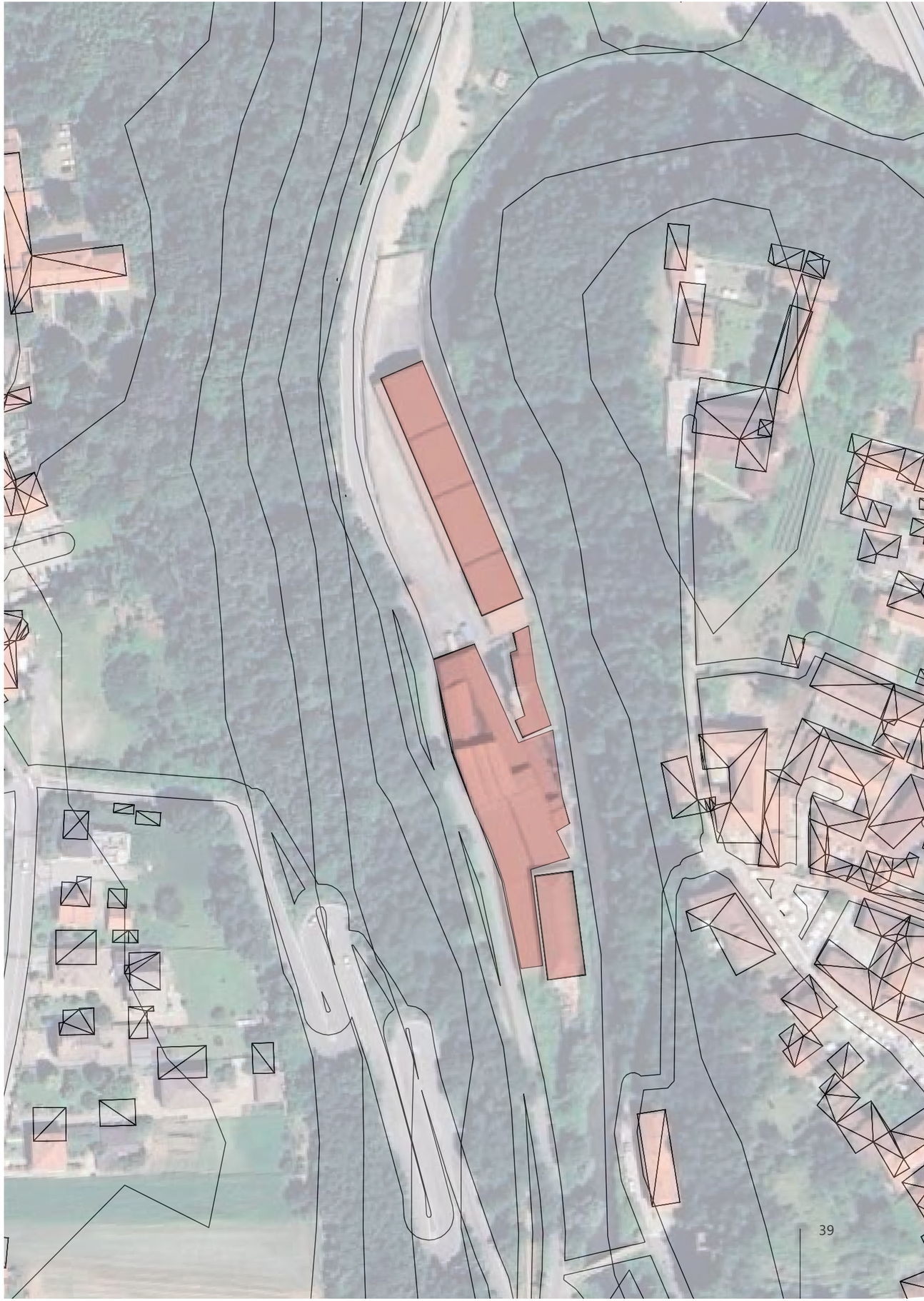
The character of this town is strongly influenced by Cardinal Branda Castiglioni (1350–1443), a humanist, politician, and philanthropist, who rebuilt Castiglione Olona in the 1420s–1430s according to humanistic ideals and commissioned Italian artists such as Masolino da Panicale for this purpose. These works gave the town a unique artistic and architectural style for the region and made it one of the first centres of Renaissance culture in Lombardy.[16]

In this context, the riverside zone of Olona, inclusive of the location that is now known as the former Cartiera Crespi site, has evolved to be part of industrial development in the area, where farming, craft production and finally mechanised industry took place beside each other, taking advantage of water availability, transport progress and market integration.

In present day Castiglione Olona we can find a dual presence of the town: on the one hand it is acknowledged as an impressive unit of Renaissance creation; on the other hand, it is a site of industrial devastation and transformed riverbanks, where the challenges of preservation and reuse are still actual. It is this complex nature that gives the reasons for carrying out inquiries into industrial heritage and territory redevelopment.

In the next pages that will follow, reveal **the territorial analysis by utilizing maps in two different scales**: Initially, the broader area will be analyzed in the scale of 1:10,000 allowing to view the valley along with its larger networks of geography, infrastructure, and the environment. Afterward, there is a shift to the urban scale of 1:5,000 where the map shows much more detailed information about the urban fabric, land use, and the immediate context of the area of interest.

Therefore, the use of two scales will help to analyze the entire territory, starting with generalized concepts and going down to the town with the site's properties.



2.2 Territorial analysis : Map layers

2.2.1 Supra-municipal planning (Infrastructure system)

RAILWAY

- Railway stations
- Existing railway line
- Historic railway line - Possible tourist redevelopment

ROAD NETWORK

- Southern Varese Bypass (Pedemontana system)
- SP 233 “Varesina” (provincial road of 2nd category)
- Other provincial-level roads (3rd, 4th and 5th categories)
- Planned road network

SLOW MOBILITY

- Existing cycle-pedestrian routes
- Planned cycle-pedestrian routes

SETTLEMENT SYSTEM

- Archaeological areas
- Historic centres

ENVIRONMENTAL SYSTEM

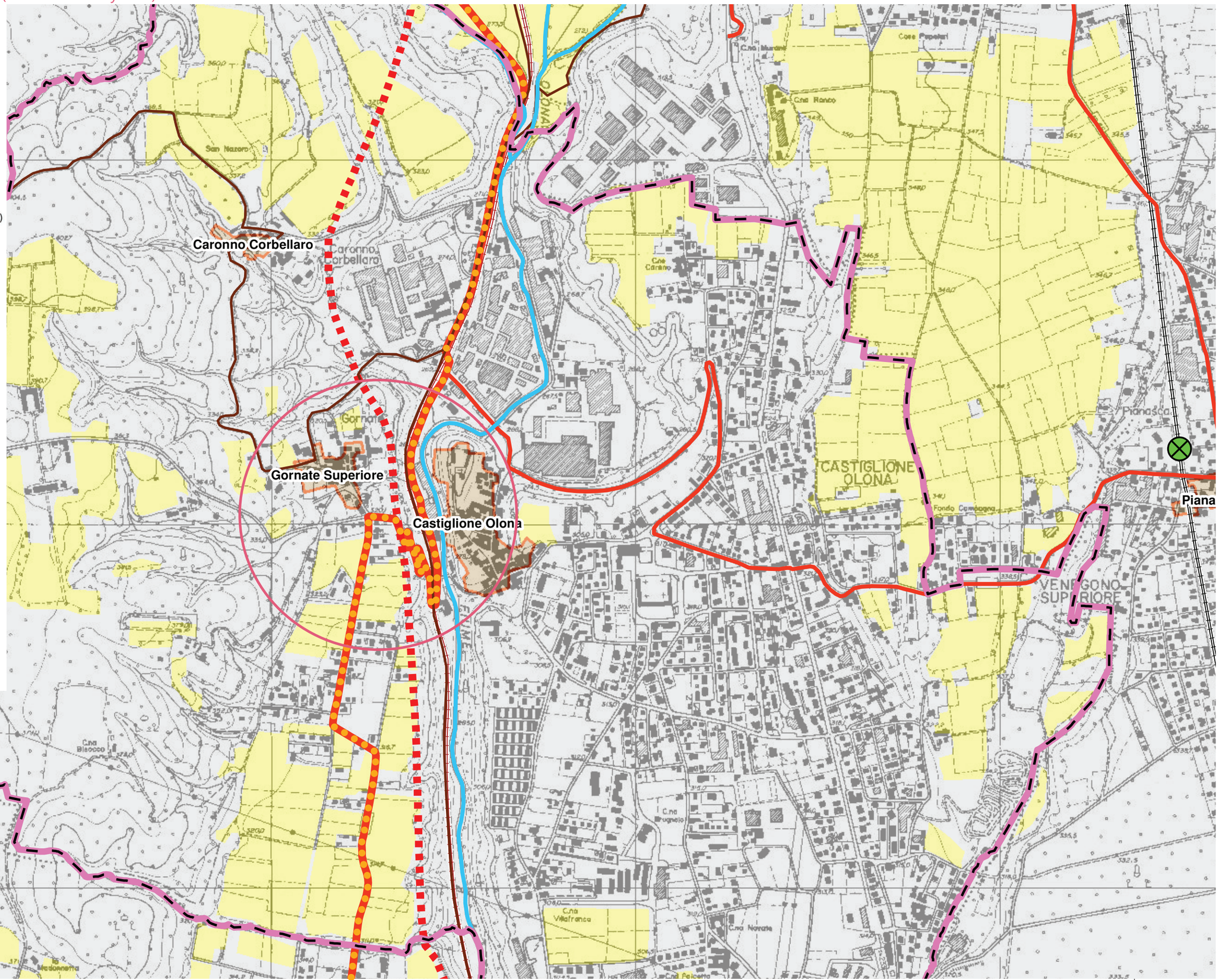
- Main hydrographic network
- Agricultural areas

TERRITORIAL REFERENCES

- Municipal boundary of Castiglione Olona

SCALE 1:10,000

N



2.2.2 Urban fabric (consolidated areas)

URBAN FABRIC CONSOLIDATED AREAS

- Listed buildings
- Cores of ancient formation
- Residential
- Productive
- Tertiary
- Tourist - recreational

SERVICES AREAS - SERVICES PLAN

municipal services

- Technological facilities
- Existing green area
- Green area in project
- Existing municipal service
- Municipal service in project

extra-municipal services

- Existing extra-municipal service
- Extra-municipal service in project

URBAN TRANSFORMATION PROVISIONS

- Areas of transformation of the Planning Document

Provisions of the rules plan

- Implementation plans
- Negotiated planning

TERRITORIAL REFERENCES

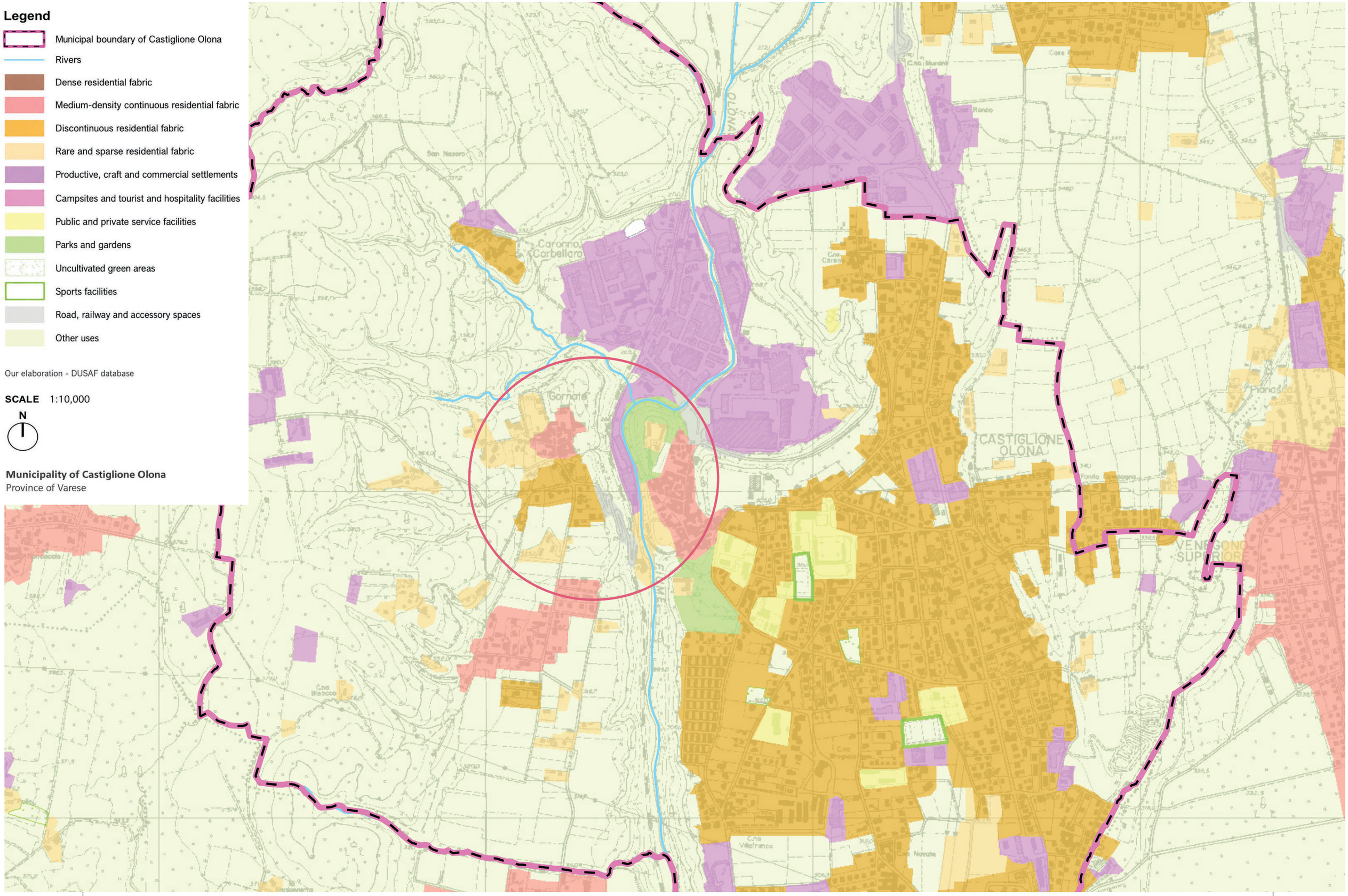
- Municipal boundary of Castiglione Olona
- Municipal boundaries of other municipalities
- Main hydrographic network

SCALE 1:10,000

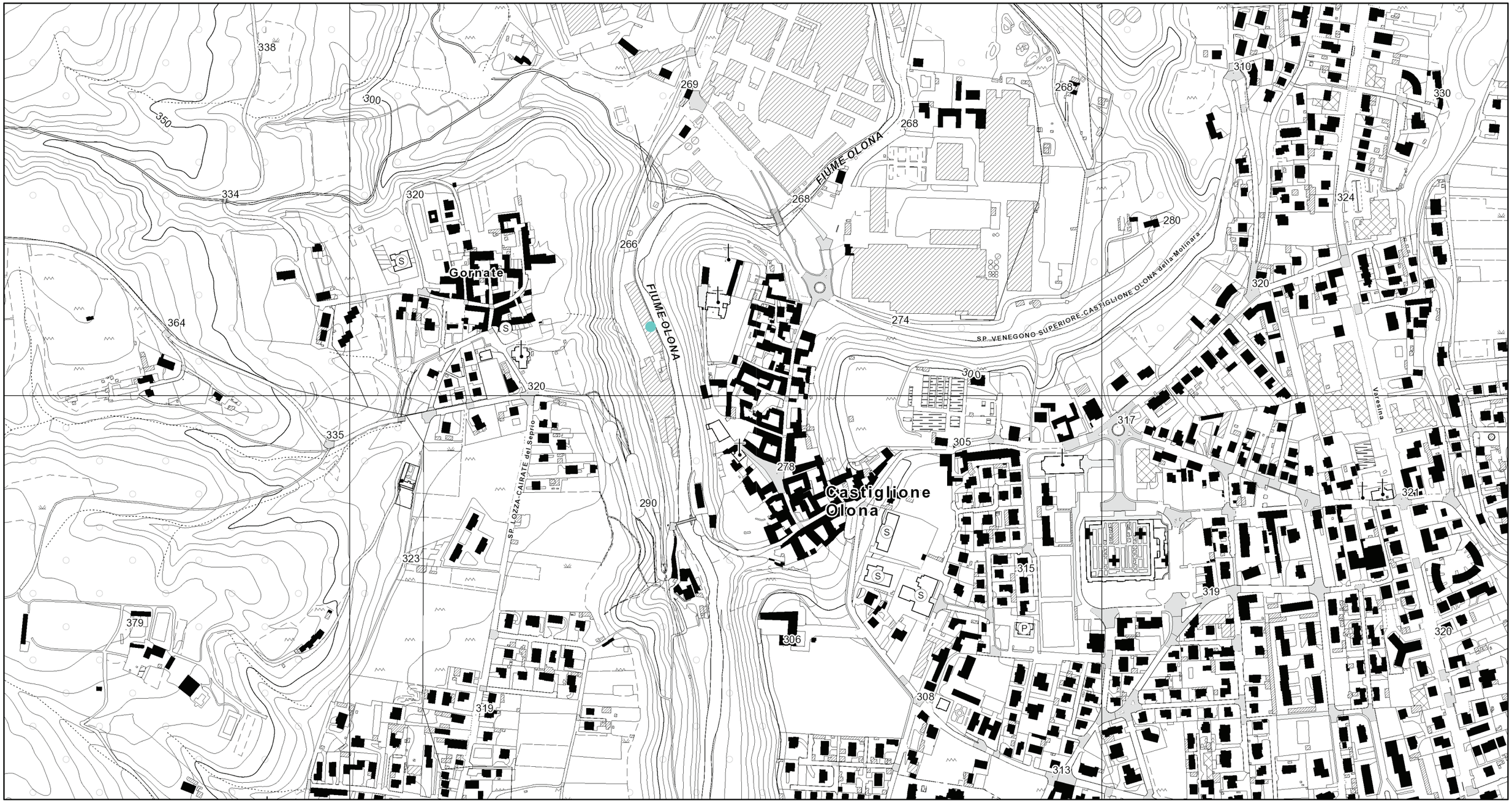
N

Municipality of Castiglione Olona
Province of Varese

2.2.3 Land use map of urbanized areas (source: DUSAF)



2.2.4 Territorial map (built/ unbuilt)



1:5,000

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Private open spaces belonging to buildings

greenhouse

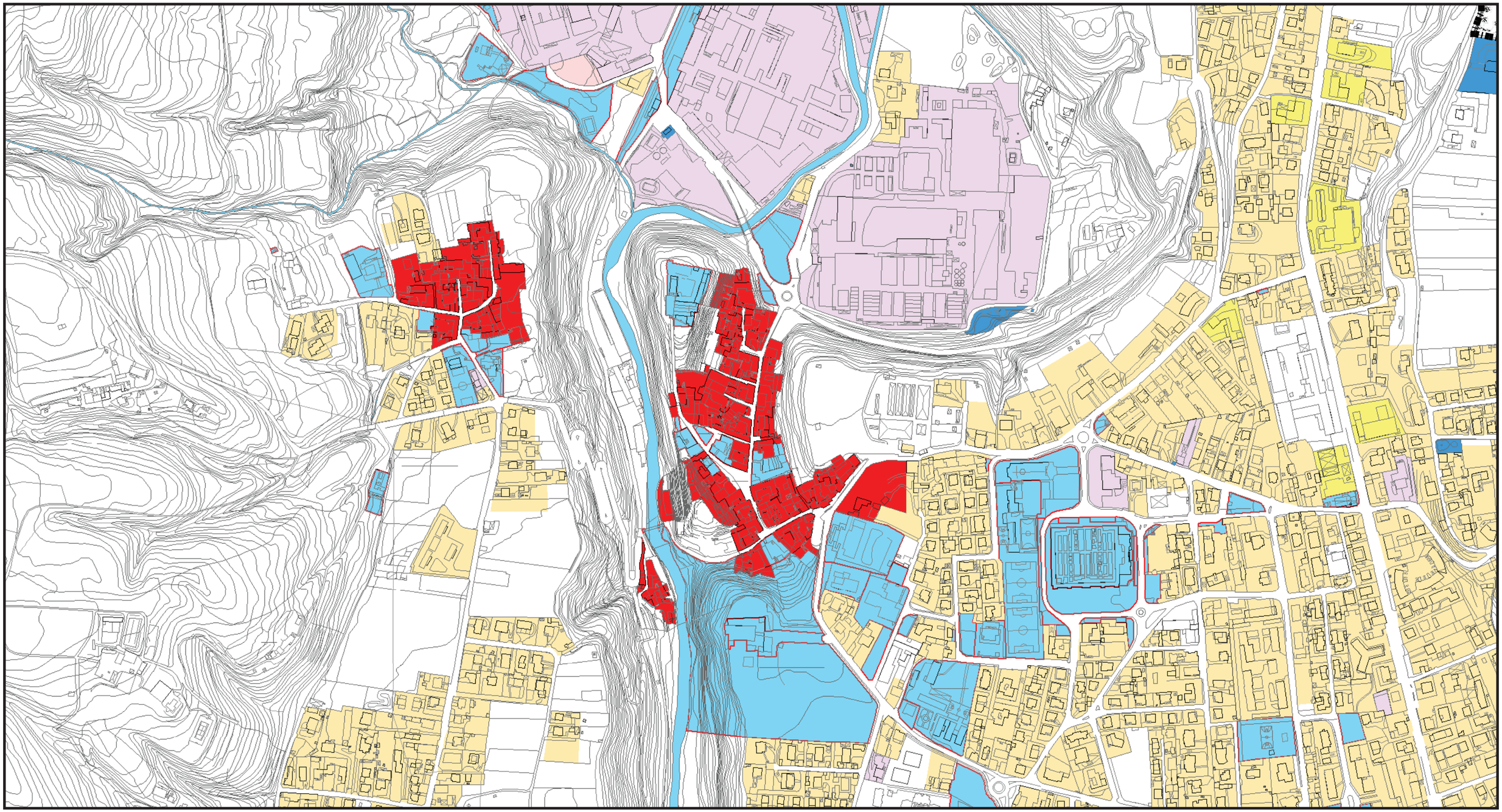
building

Covered structure / secondary building / roofed element

Breakline

Regione Lombardia

2.2.5 Map of land use



Legend

- Municipal boundary of Castiglione Olona
- Rivers
- Dense residential fabric
- Medium-density continuous residential fabric
- Discontinuous residential fabric
- Rare and sparse residential fabric
- Productive, craft and commercial settlements
- Campsites and tourist and hospitality facilities
- Public and private service facilities
- Parks and gardens
- Uncultivated green areas
- Sports facilities
- Road, railway and accessory spaces
- Other uses

scale 1:5000

N

Our elaboration - DUSAF database

2.2.6 Infrastructure and Urban fabric



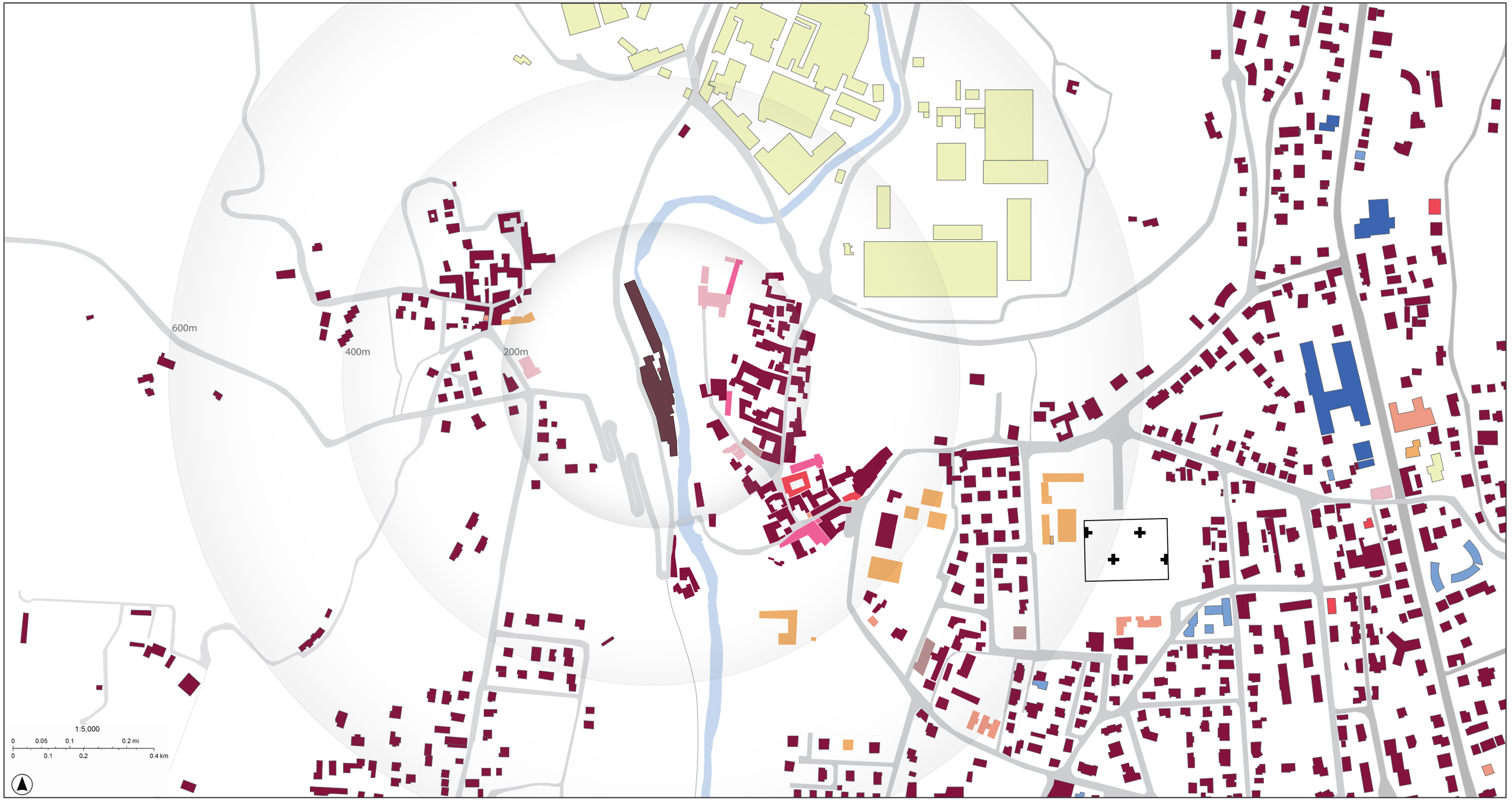
Legend

- Former cartiera crespi
- Piccolo Stelvio road
  Length: approximately 1.685 km
- Main road
- City road connections
- Bus stop
- Olona Valley cycle path

Varese bus terminal	36 min	30 min	15 min	1 hour and 50 min
Venegono Superiore (Castiglione Olona train station)	40 min/ 1h	10 min	6 min	45 min
Aeroporto "Ferrarin" Venegono Inferiore	30 min	15 min	8 min	42 min
the nearest bus stop to former cartiera crespi		2 min	1 min	8 min

- Open agricultural land and sparse residential development
- Continuous residential fabric and the historic centro
- Industrial Fabric

2.2.7 Land use/ Function



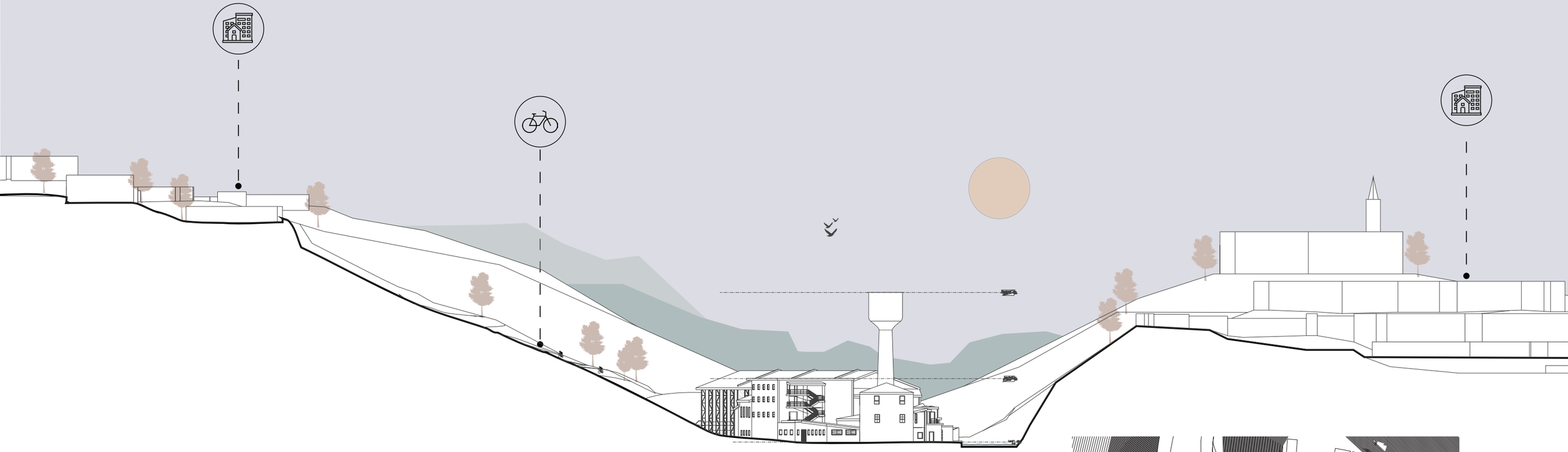
Legend

- Former cartiera crespi
- Religious place/ church
- Museum / Cultural place
- Residential
- Governmental space/ office
- Turism resident/ Motel
- Entertainment/Food/ Bar
- School/ Educational space/ Biblioteca/ youth center
- Graveyard
- Medical center/ Studio/ Health counselor
- Industrial space/ company
- Shop

scale 1:5000

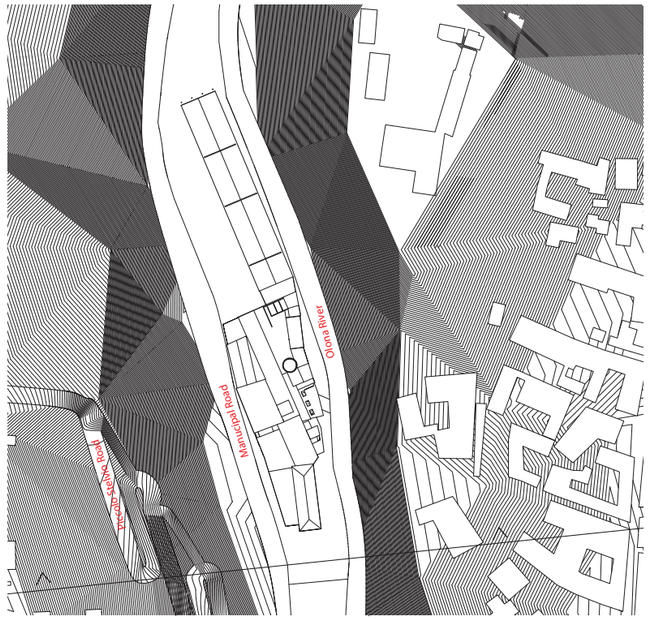
N

2.3 Valley Section



The upper part of valley characterized mainly by residential and cultural settlements , while industrial complex is located at the bottom in direct relation with the river. Also the Piccolo Stelvio road connect the bottom part of the valley to the upper part. Further the map of existing situation of the site with section line is represented.

Fig 01.olona valley long section



2.4 The site within the Olona flood hazard framework

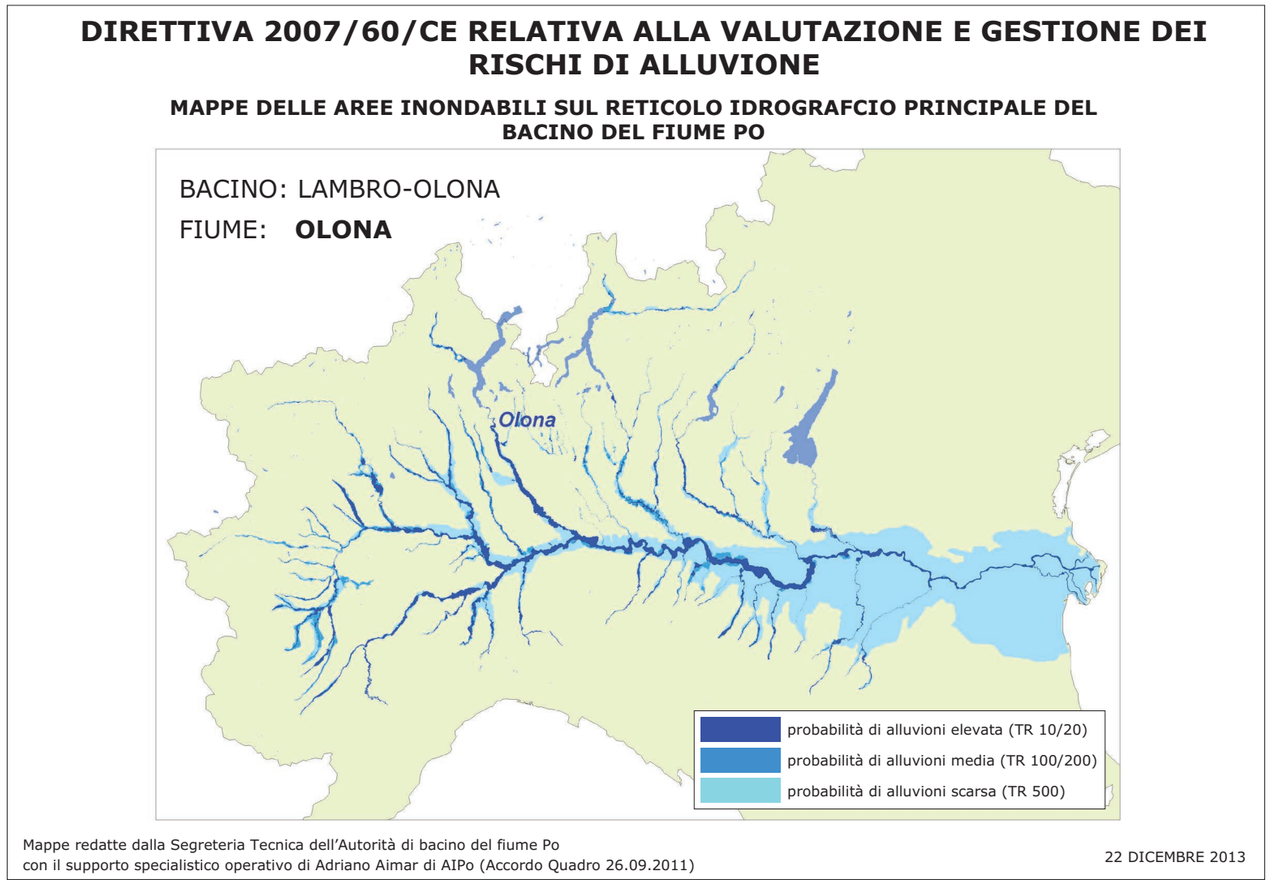
The maps in the following pages (maps n. 07-08-09) ,were drawn based on the flood hazard assessment of the Po river basin as part of the implementation of the European Floods Directive (2007/60/EC), while in Italy the mapping was carried out through PGRA. The first set of the flood hazard assessment done for the Lambro–Olona basin was carried out in 2013. The flood hazard map identifies three levels of flood probabilities for areas of land adjacent to rivers, high probability being about every 10–20 years; medium probability corresponds to a flood risk of once every 100–200 years, while low probability means that flood risk in the area occurs once every 500 years or less [map n.07].

Across the entire territory, the Olona system is one of the most flood prone in Lombardy because the river goes through densely populated urbanized areas and is forced into a narrow channel.

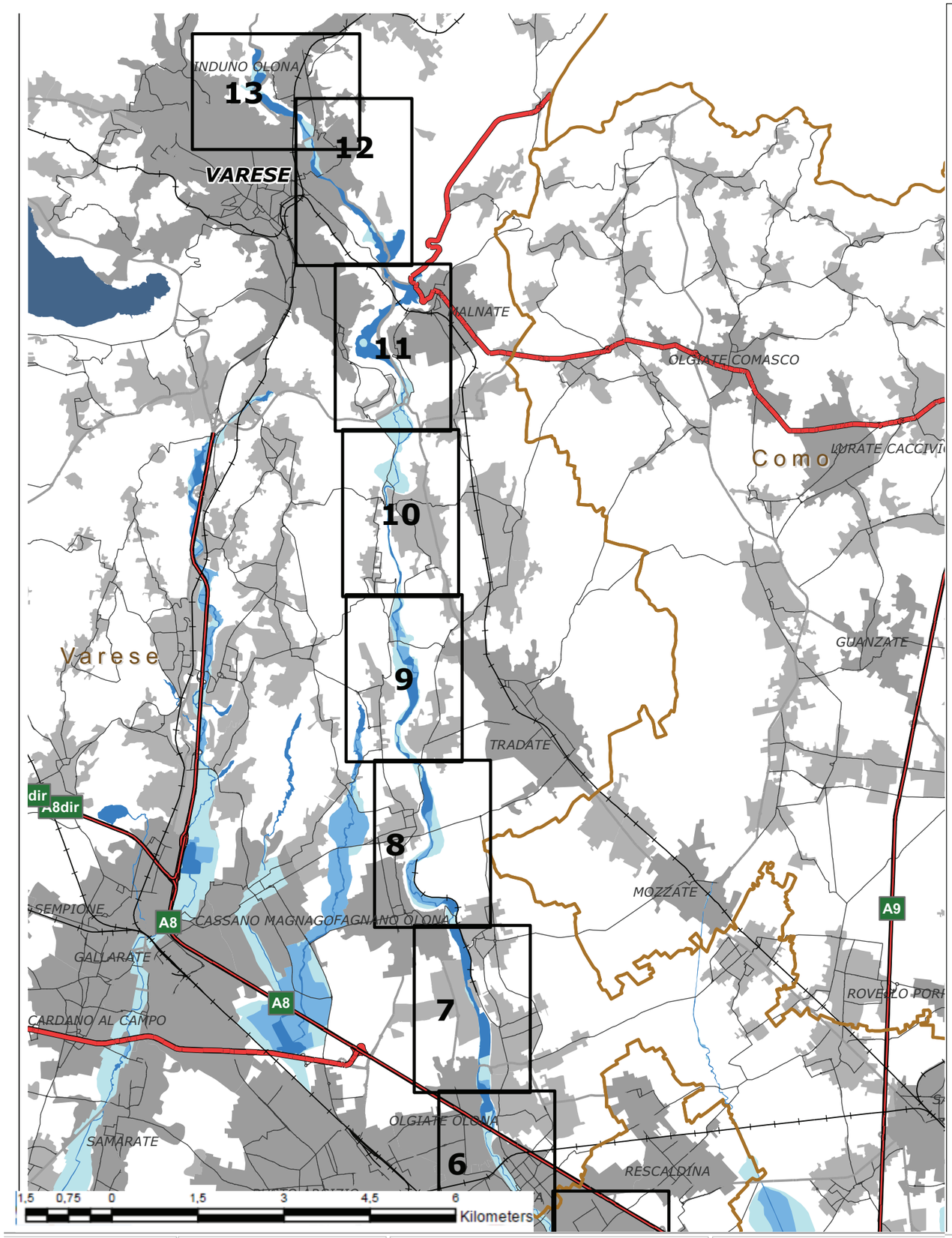
Castiglione Olona is located in the river Olona section, just below Malnate [map n.08]. a close inspection of this area shows the existence of a modern cartiera just along the bank of the river Olona; thus, the mill is located in an area that could possibly be flooded [map n.09]. The area that floods often poles the mill quite closely on one side, while the mill area belongs to the low-risk zone. This means that the territories right next to the mill are the ones that repeatedly get flooded, while the mill itself is situated in a zone that hardly gets its territory flooded (which happens once in 500 years).

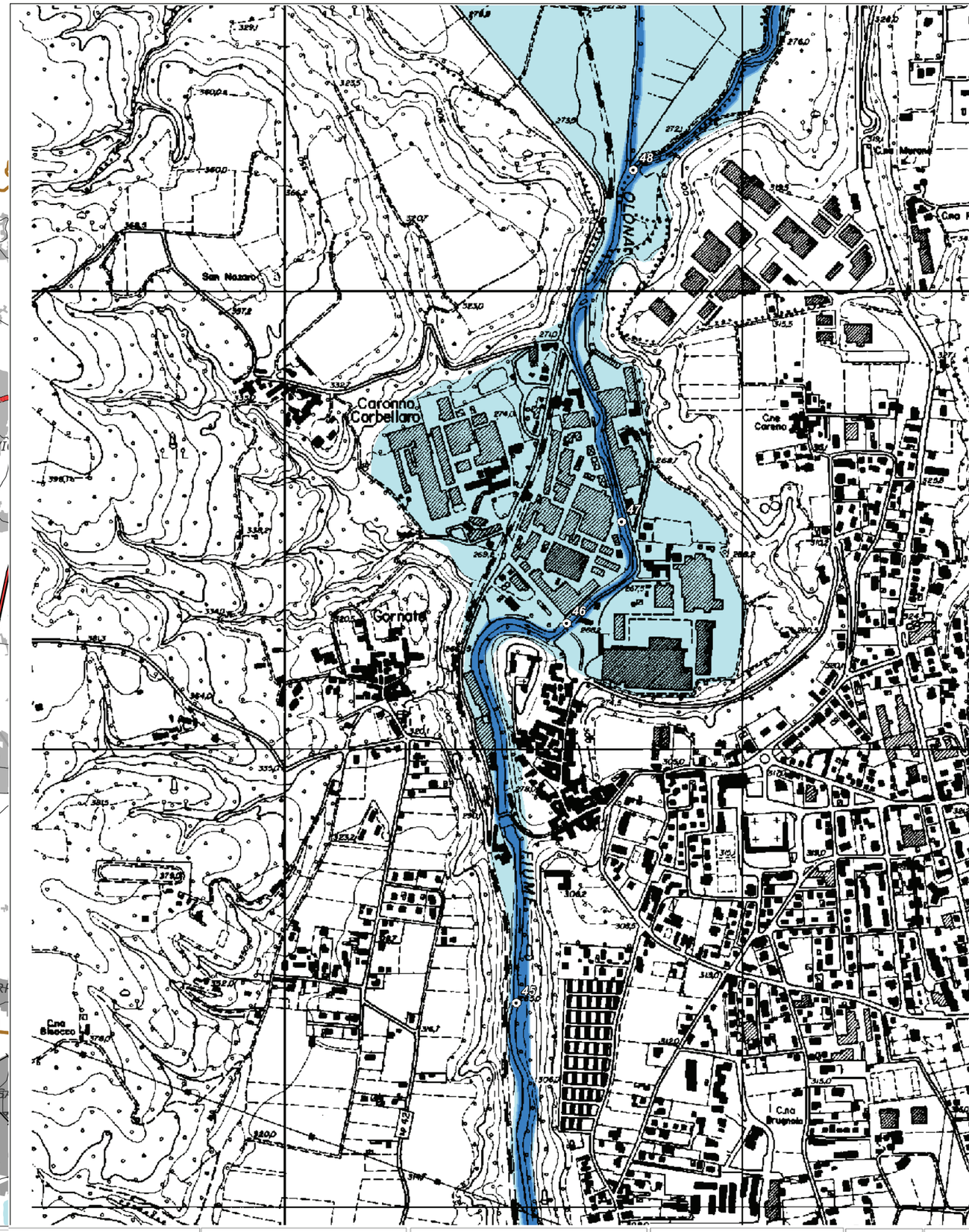
The Cartiera is precisely situated according to the position of the site. The it is situated between the river and the formation of a valley below, where the old river beds of the Olona were once built. thus, the map only verifies what has already been stated. In addition, the calamities noted in the hazard map match the information regarding floods that occurred in the area, such as the one that took place in 1992, and the floods that occurred between the 12th and 13th of September 1995.

also Fig. 02-03, which is discaused in the thesis of Machado Bastosof, vividly reperesented how the former cartiera is locating on the former Olona river bed.



map n.03: Index of the Floods Directive map sheets for the Olona





DIRETTIVA 2007/60/CE ZIONE E GESTIONE DEI RISCHI DI ALLUVIONE	MAPPE DELLE AREE INONDABILI	FIUME: OLONA	QUADRO DI UNIONE DELLE TAVOL	DIRETTIVA 2007/60/CE ALUTAZIONE E GESTIONE DEI RISCHI DI ALLUVIONE	MAPPE DELLE AREE INONDABILI	BACINO: LAMBRO-OLONA	FIUME: OLONA	1:10.000	TAV. 1

map n.04: Map of floodable areas, river Olona, with the probability legend

map n.05: Detail of the floodable area at Castiglione Olona, showing the former Cartiera Crespi

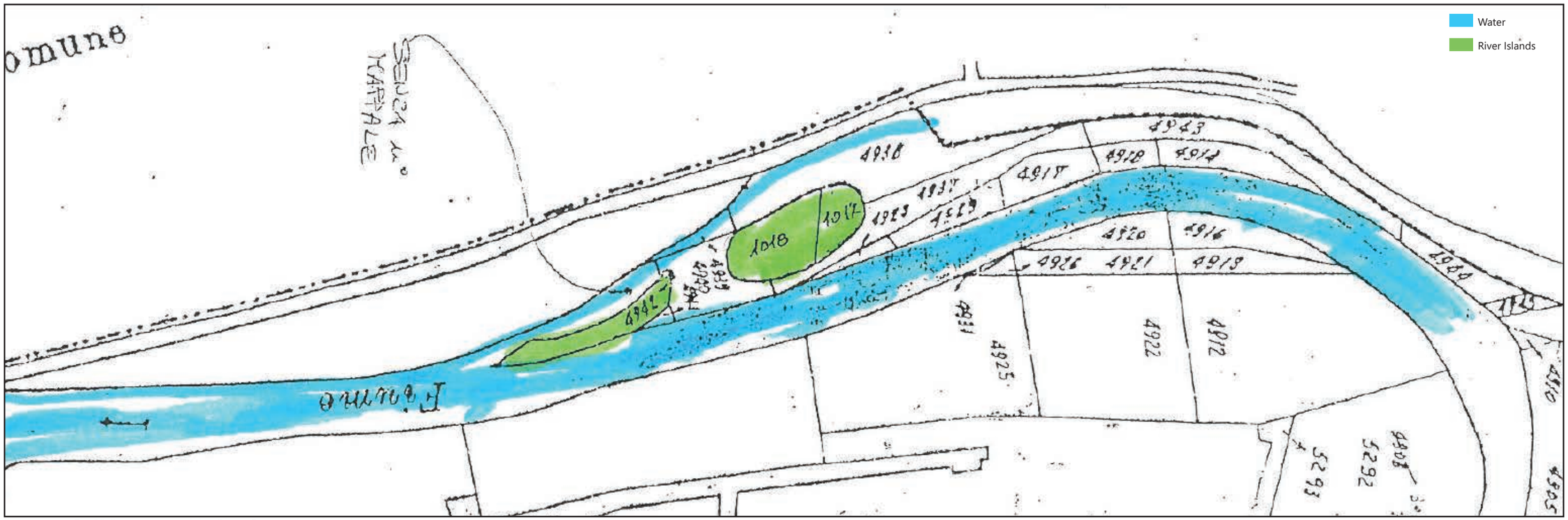


Fig 02.Original map of the Olona River with its islands

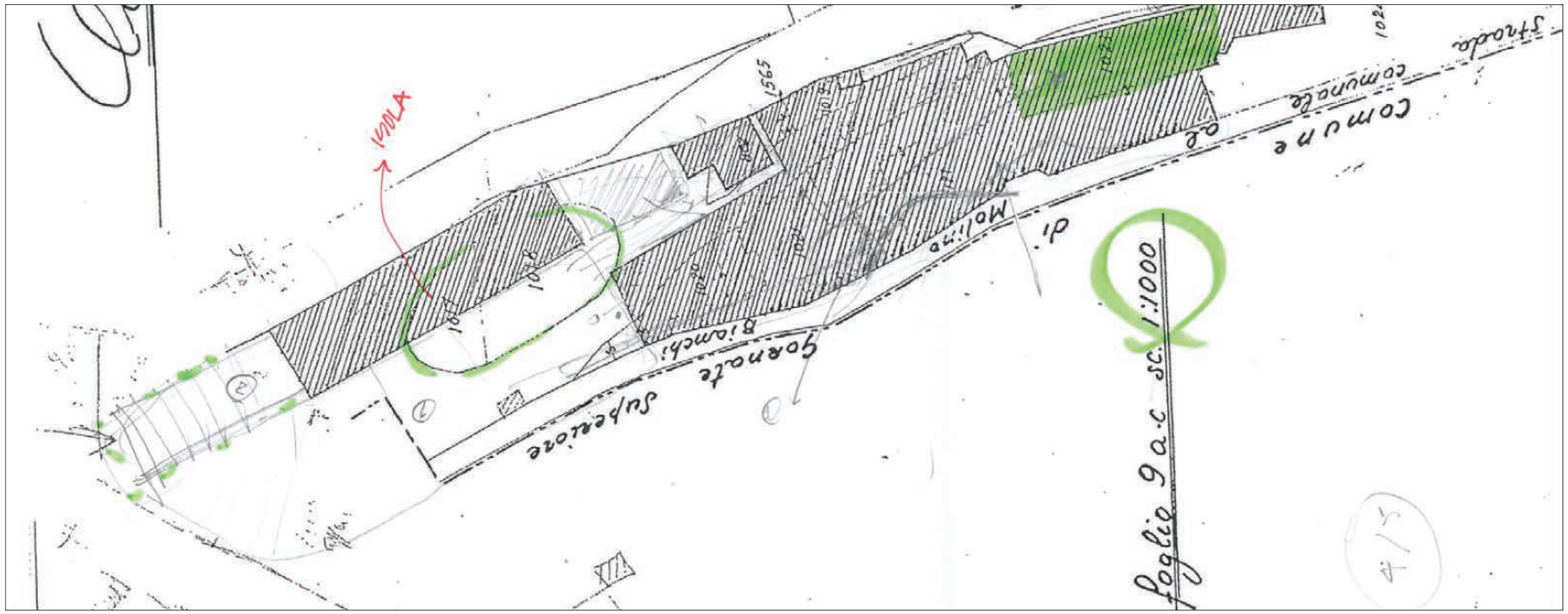


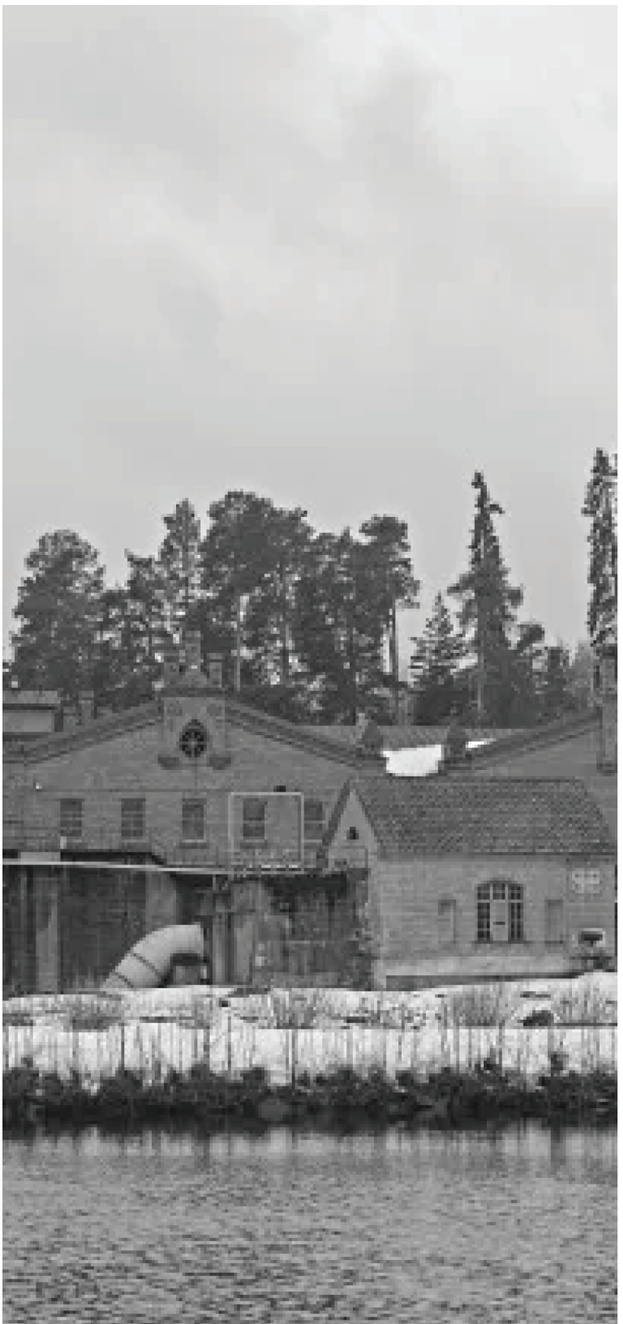
Fig 03.Current state of the Crespi paper mill

S	W	O	T
Strength	Weakness	Opportunity	Threats
• Strategic location at the interface between the historic center of Castiglione Olona with dense continuous residential fabric and open agricultural land, sparse residential fabric the Olona River valley • Presence of natural and agricultural landscapes surrounding the site that caused strong landscape character created by the contrast between industrial heritage and natural surroundings. • High quality of the environment due to riparian vegetation and green buffer zones	• Exposure to hydraulic and flood risks because of being near the Olona river • River corridor regulations that can restrict future interventions • Presence of overgrown vegetation that can cause environmental degradation • Potential soil and groundwater pollution caused by former industrial activities	• Creation of public green spaces along the Olona River • Improvement of the riverfront environment and natural habitats • Connection of the site to existing green and ecological networks	• Increased flood events due to climate change and wrong design or management • Environmental regulations limiting development capacity • Ongoing ecological degradation if abandonment continues
• Located within one of Lombardy's most important historic settlements • Walking distance from the major cultural attractions	• Weak relationship between the abandoned site and community life • Not enough public awareness of the site's historical significance	• Creation of a cultural gateway to Castiglione Olona • Having potential to develop educational, exhibition and community spaces • Strengthening links with local associations • Enhancement of industrial heritage tourism.	• Loss of public interest in the site • Failure to generate sufficient community engagement • Competition from established cultural destinations in the region
• Officially recorded as a disused industrial area, eligible for regeneration programmes. • Potential access to regional, national and European funding mechanisms • Increasing institutional interest in industrial heritage and disused land	• High restoration costs • Limited local economic demand for large-scale redevelopment • Long and difficult approval procedures related to environmental and planning regulations	• Access to regional and European regeneration funding • Inclusion within wider territorial development strategies • Possibility to attract private investment through adaptive reuse • Development of cultural and creative industries	• Lack of public funding • Competition with larger regeneration projects within the Olona Valley • Changes in political priorities that could affect this project

	S Strength	W Weakness	O Opportunity	T Threats
Urban Planning / Architecture	• Large industrial complex with adaptable spatial typologies. • Presence of distinctive industrial elements such as the water tower and production halls • Significant architectural and industrial heritage value • Flexible internal volumes suitable for mixed-use programs • Strong visual landmark within the valley landscape	• Severe physical interior /exterior deterioration of several buildings • Structural instability in some areas (according to existed images and videos) • Obsolete industrial infrastructure • Fragmented building conditions resulting from decades of abandonment • Lack of contemporary utilities and technical systems	• Adaptive reuse of industrial buildings for new functions • Creation of mixed-use programs combining culture, work, tourism and public services • Opportunity to establish a landmark regeneration project for the Olona Valley	• Further structural decay if stays abandoned • Escalating restoration costs • There may be economic or development interests that prefer demolishing the existing industrial buildings instead of preserving and reusing them
Mobility	• Located near regional road infrastructure • Existing bicycle connections along the Olona corridor • Accessible from different connection point (Venegono Superiore railway station, airport, ...)	• Poor pedestrian accessibility from the railway station • Weak connection between the site and the historic center due to topography • Dependence on private vehicles	• Enhancement of cycling tourism along the Olona corridor • Improvement of pedestrian connections between the valley floor and historic center	• Continues dependence on private transport • Insufficient investment in sustainable mobility infrastructure
Ownership	• Single industrial compound allowing coherent redevelopment strategies • Large contiguous property without excessive fragmentation	• Uncertainty regarding future ownership intentions and investment capacity • Potential complexity in negotiating about redevelopment strategies	• Possibility of public-private partnerships • Potential municipal involvement through regeneration frameworks • Opportunity for phased development strategies, transform gradually in different stages	• The future of the site may be blocked because the owner is unwilling, unable, or slow to take action, or because there are disagreements among stakeholders regarding its future • A developer may be interested mainly in the economic value of the land rather than the preservation of the historic factory • Many different actors may be involved in the regeneration process, each with different interests and objectives
Identity & Memory	• One of the most recognizable industrial heritage sites in the Olona Valley • Strong collective memory associated with local industrial development • Potential to become a symbolic landmark for the regeneration of the valley	• Progressive loss of industrial heritage due to abandonment • Risk of disappearance of historical machinery and production traces • Lack of formal heritage protection compared with other industrial sites	• Interpretation and preservation of industrial heritage • Creation of an industrial archaeology center • Reconnection between collective memory and contemporary use	• Permanent loss of industrial heritage elements • Erasure of historical narratives through inappropriate redevelopment • Reduction of the site to a purely real-estate operation without cultural value.

Methodology: Each case is analyzed using the same 5 parts framework: 1.introduction, 2.historical timeline 3.preservation and adaptive reuse rationale 4.architectural intervention 5.relationship with water. This consistent methodology provides a structured approach to understanding each case from multiple perspectives, allowing its historical evolution, architectural characteristics, adaptive reuse process, and relationship with water to be examined in a clear and systematic manner.

#01
VERLA GROUNDWOOD AND BOARD MILL
FINLAND



#02
FYANSFORD PAPER MILL
AUSTRALIA



#03
CARTIERA LE CARTE/ MUSEO DELLA CARTA DI PESCIA
ITALY



#04
CARTIERA DI MAINA INFERIORE
ITALY



#01

2.6.1 Verla groundwood and board mill , Finland

1. Introduction

The Verla groundwood and board mill, in the rural municipality of Jaala (Kouvola), is the most intact surviving example of the small-scale forest-industry settlements that flourished across northern Europe in the 19th century, and the only wood-processing site on the UNESCO World Heritage List [17]. It enters this comparison as the conservation pole: a mill preserved in its entirety rather than transformed, and therefore a benchmark for how far authenticity alone can carry the value of an industrial site.

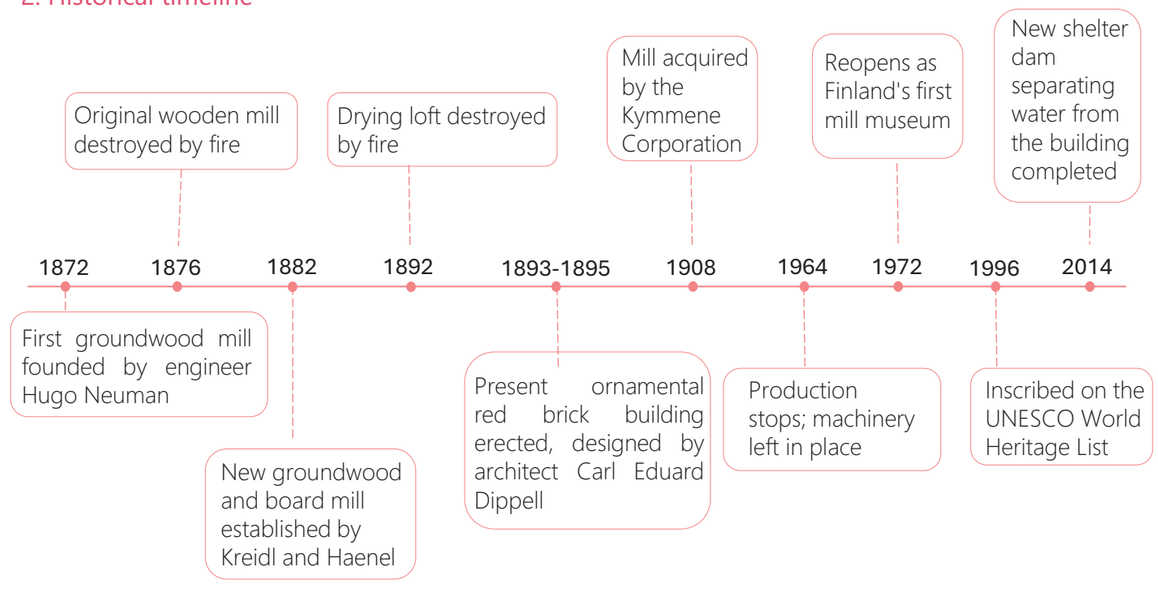


Fig 04.former verla board mill



Fig 05. historical image of former verla board mill

2. Historical timeline



3. Preservation and adaptive reuse rationale

The Verla groundwood and board mill offers a well-documented example of industrial heritage sustained through continuous, incremental reuse rather than static preservation. First established as a small groundwood mill in 1872 and rebuilt after a fire under Gottlieb Kreidl in 1882, the works operated until production ceased in 1964 . Closure did not lead to abandonment: in 1967 the owner, the Kymmene Corporation, established a company holiday village on the grounds, and in 1972 the mill opened as Finland's first industrial museum. This dual programme allowed the complex to remain in active use even as it acquired museal value, culminating in its inscription on the UNESCO World Heritage List in 1996 as a rare and exceptionally intact record of small scale nineteenth century wood processing industry. The trajectory of the owner's residence, the so-called Patruunan Pytinki, condenses this logic of layered reuse. designed by the architect Carl Eduard Dippell and completed in 1885, the neo-Renaissance building, served successive mill managers as a private residence until 1966, was converted into the holiday village restaurant in 1968, and remained in that role until 2007, when its adaptation into an exhibition building began [18]. read across more than a century, Verla demonstrates how heritage significance can be produced not by freezing a site at a single moment but by accommodating a sequence of compatible functions, each leaving a legible trace in the built fabric.

4. Architectural intervention

The intervention philosophy is one of freezing the mill in time: because the production



Fig 06.Historical timber-handling operations at Verla Wood Mill, showing logs transported and sorted using a water-based system before entering the production process. The image illustrates the close integration between the mill, hydraulic infrastructure, and surrounding forest resources



Fig 07.Paperboard quality control at Verla Wood Mill



Fig 08.Workers handling wood pulp sheets at Verla Wood Mill

line and machinery are themselves the exhibit, conservation rather than adaptation governs every decision, and no new commercial functions are inserted into the historic fabric[17]. Later works remain strictly conservative , the Neo Renaissance owner's residence, designed by Dippell and completed in 1885, had its exterior repainted in turn of the century style in 2012–2013 and its interior returned to late 19th century character[18]. The only substantial new construction has been protective and infrastructural, most notably a new shelter dam separating the water from the mill building.

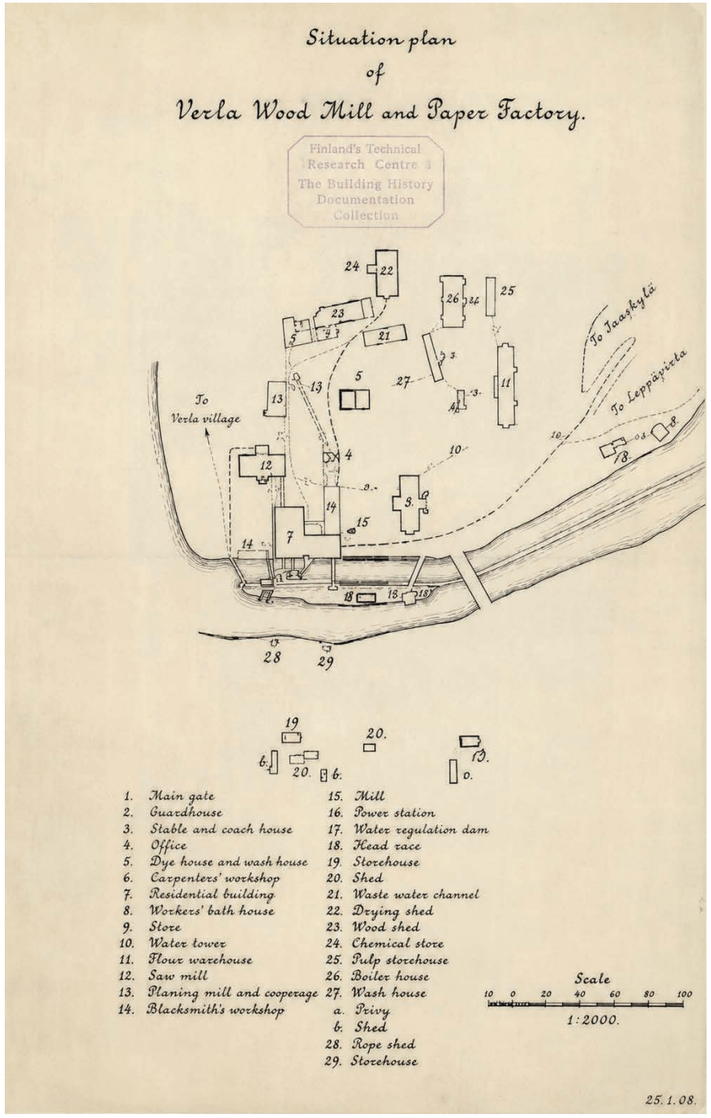


Fig 09.historical site plan of the Verla Wood Mill

5. Relationship with water

Verla sits on the Verlankoski rapids, which historically powered the mill and today drive three hydro-power plants from three different decades, while the rapids also separate the production area from the residential area across roughly 50 buildings on 23 hectares[17]. Flood risk is managed upstream and systemically , through the regulated rapids and the buffering capacity of the Finnish lake chain system, rather than through any site level flood defence, which is why buildings can stand at the water's edge with minimal adaptation.

#02

2.6.2 Fyansford (Barwon) Paper Mill, Australia

1.introduction: The Fyansford, or Barwon, Paper Mill occupies an escarpment above the Barwon River near Geelong, Victoria , a semi rural riverside setting adjacent to Buckley Falls. It enters this comparison as the incremental, grassroots-reuse pole: a heritage listed 19th century mill reactivated not by an institution or a master plan but organically, tenant by tenant, over two decades.

2. History timeline: The Fyansford Paper Mill has lived several lives. In 1874 a Scottish engineer, Andrew Miller, picked this spot on the Barwon River for one reason: the steep drop of the water, powerful enough to run a mill. By 1878 the bluestone factory was making paper, driven by an 85-foot rush of water into its turbine. Papermaking stopped in 1923, but the sturdy old building refused to fade, it stored ice, and during the Second World War it even held naval sea mines. For decades afterwards it simply waited. Then, in 2001, the Robbin family bought it and slowly opened its doors to artists, who filled the halls with studios, galleries, and cafés. That is what Fyansford is today: a lively creative precinct where people make, show, and gather among the old stone walls , an industrial ruin brought back to life by the simple act of using it again. Its next chapter is already beginning, as new owners (2024) prepare a full restoration.[19]

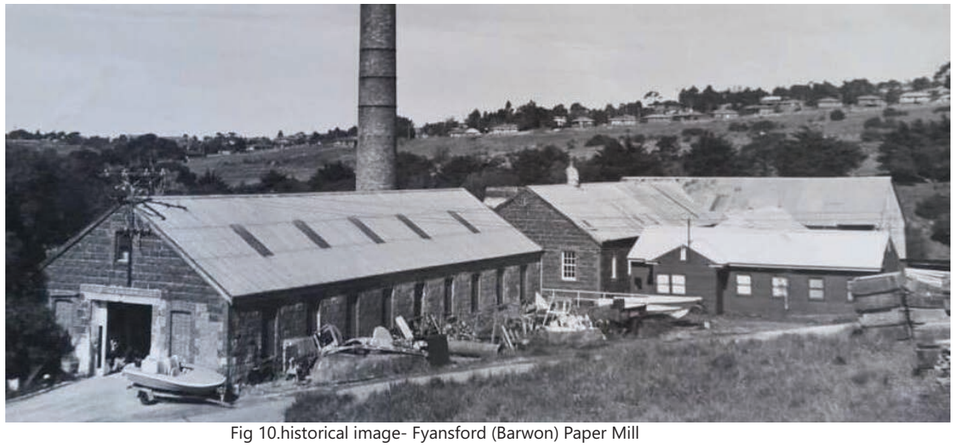
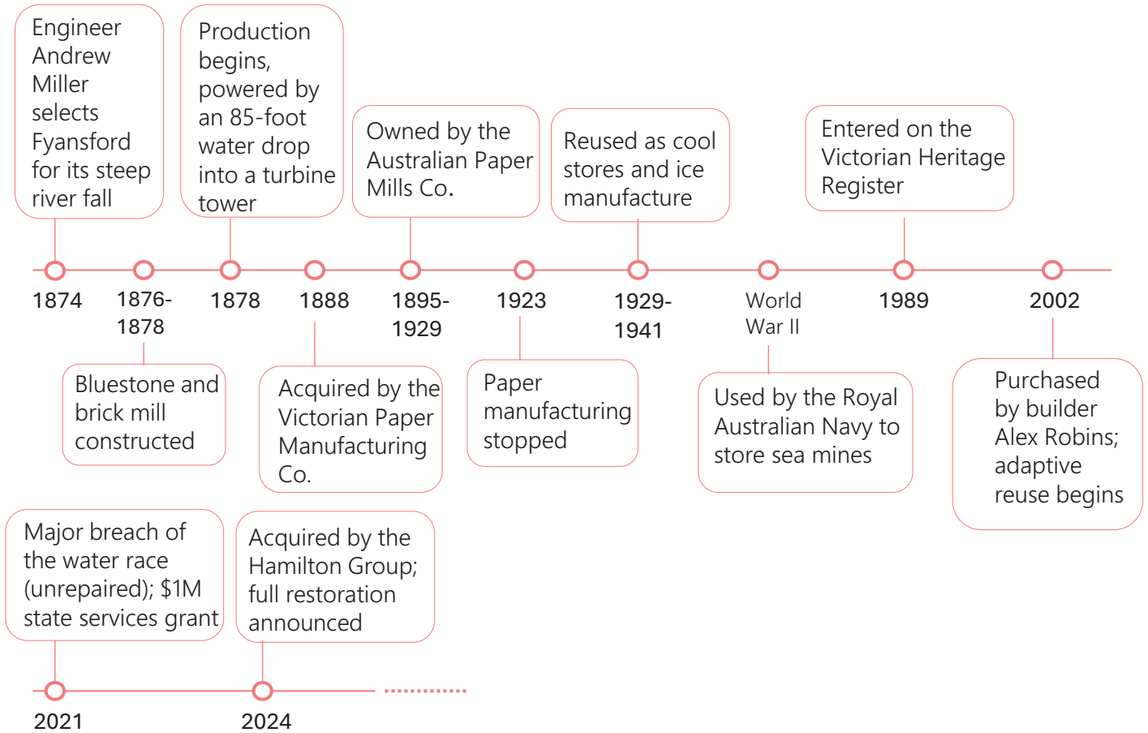


Fig 10.historical image- Fyansford (Barwon) Paper Mill



Fig 11.new image- Fyansford (Barwon) Paper Mill



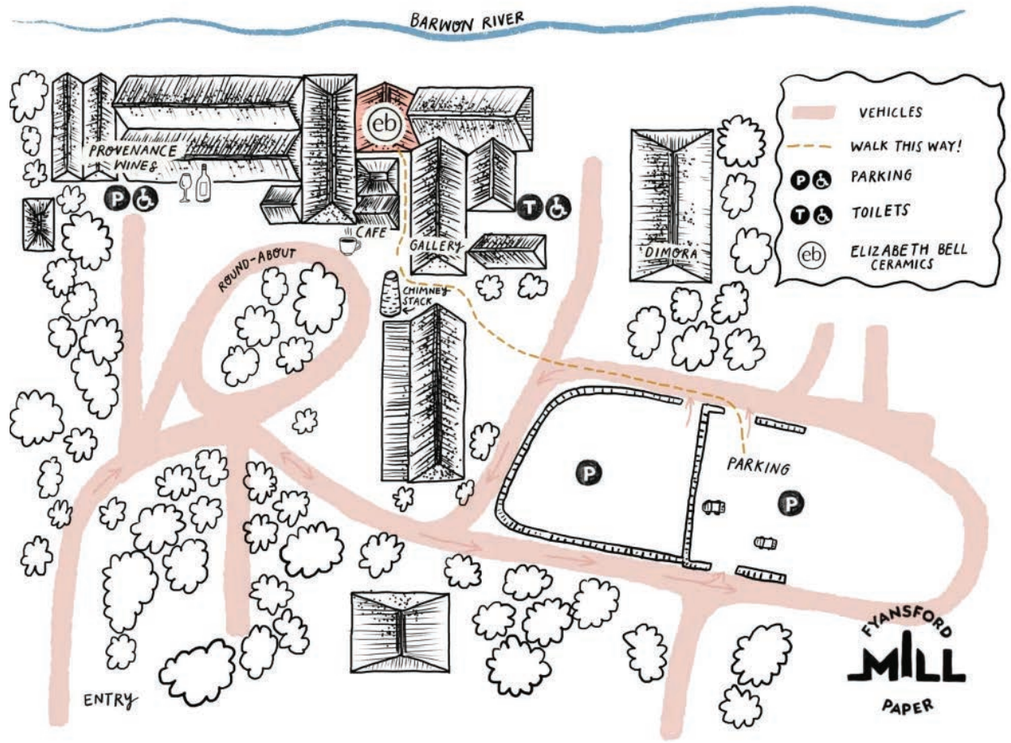


Fig 12.Redrawn site plan of the Fyansford Paper Mill adaptive reuse masterplan, illustrating the spatial organization of the complex, circulation network, and public facilities

3. Preservation and adaptive reuse rationale

Fyansford is an example of people coming together to save a place in a creative way. The Robbin family bought the site in 2001. slowly turned it into a place with art studios, cafes and galleries. this approach treats the buildings' weathered, disused character as itself valuable, preservation not as freezing a site unchanged, but as returning it to the life of the community." The building was listed on the Victorian Heritage Register in 1989 which meant it was protected by law. This allowed Alex Robins to slowly bring the place back to life. In 2024 the Hamilton Group bought Fyansford with plans to fully restore the mill. Fyansford is still a place for creative people, like artists and craftspeople to work and make things.[19]



Fig 13.historical image- Fyansford (Barwon) Paper Mill



Fig 14.Fyansford (Barwon) Paper Mill

4. Architectural intervention: Intervention is light-touch and tenant-driven rather than a single unified project and no added building exists : individual occupants restored individual buildings within a robust bluestone shell treated as a durable "stage" for post-industrial making. Provenance Wines, for example, restored one heritage-listed bluestone building above the river into a cellar door and restaurant[21]. A revealing negative lesson concerns the water-level heritage: the 950-metre water race, restored in 1982 but left unmaintained after 1991, suffered a major breach in 2021 that remains unrepaired, demonstrating how water-level elements are the first to be lost when maintenance governance fails.[20]

5. Relationship with water : Water played a fundamental role in both the original operation of the Fyansford Paper Mill and its long-term survival. The mill was strategically located beside the Barwon River, where the site's natural topography provided water drop to power the turbine through a water race[19]. Rather than relying on artificial pumping systems, the engineers used the natural elevation difference to generate the hydraulic energy required for paper production. At the same time, the main industrial buildings were constructed on the higher escarpment above the Barwon floodplain, protecting them from flooding while maintaining direct access to the river. this design has proven remarkably resilient.

Although the water race remains exposed to fluctuating water levels and occasional flood events, it functions as a sacrificial hydraulic element, while the principal mill buildings continue to occupy a naturally flood-safe position. The relationship between the factory and the river therefore reflects a careful balance between harnessing water as an energy source and mitigating its environmental risks through thoughtful site planning.



Fig 15.Adaptive reuse of the former Fyansford Paper Mill as the Provenance Wines cellar door and event space



Fig 16.Adaptive reuse of a former paper mill building as an art gallery at Fyansford Paper Mill



Fig 17.Original industrial fabric preserved within the former Fyansford Paper Mill

#03

2.6.3 Museo della Carta di Pescia (former Cartiera "Le Carte" -Italy)

1.Introduction: One of the most important sites of paper-industrial archaeology in Italy, the Cartiera “Le Carte” is located in the valley of the Pescia river in Tuscany and preserves the machinery and environment for the hand papermaking process of the 18th and 19th centuries[23]. this site is included in our comparison as an example of living production because it is a mill that has been transformed into the process of papermaking. the Museo della Carta di Pescia (Pescia Paper Museum) associated with this site was opened in 1996, and it is maintained by the Associazione Museo della Carta di Pescia, which is a group of only around sixty-eight members (individuals, associations, and public institutes). the goal of the association is to keep the tradition of hand papermaking that has been practised in the Pescia area since the late 15th century. in 2004, the Associazione Museo della Carta di Pescia obtained the historic “Le Carte” area previously owned by the Magnani family and has been restoring it step by step until now. the museum complex includes exhibition halls, classrooms, a library, a conference hall, and a workshop where tourists can learn how to make paper on replicas of the original equipment.[22]

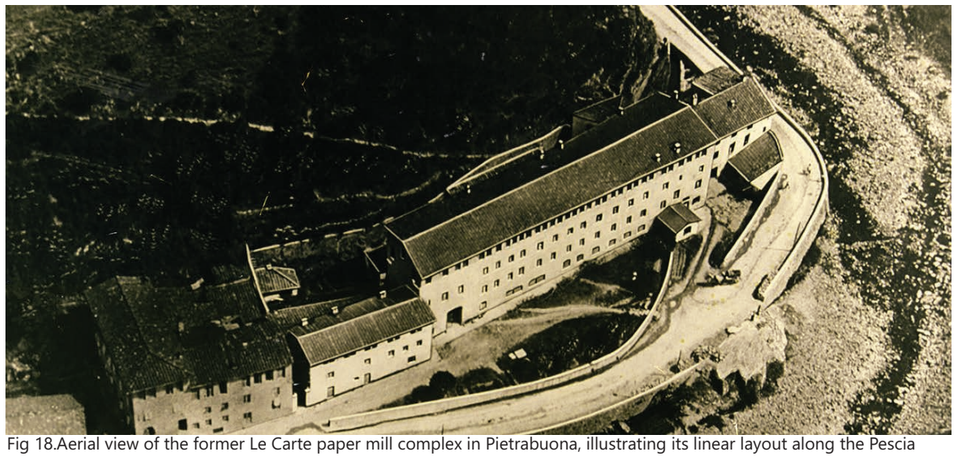
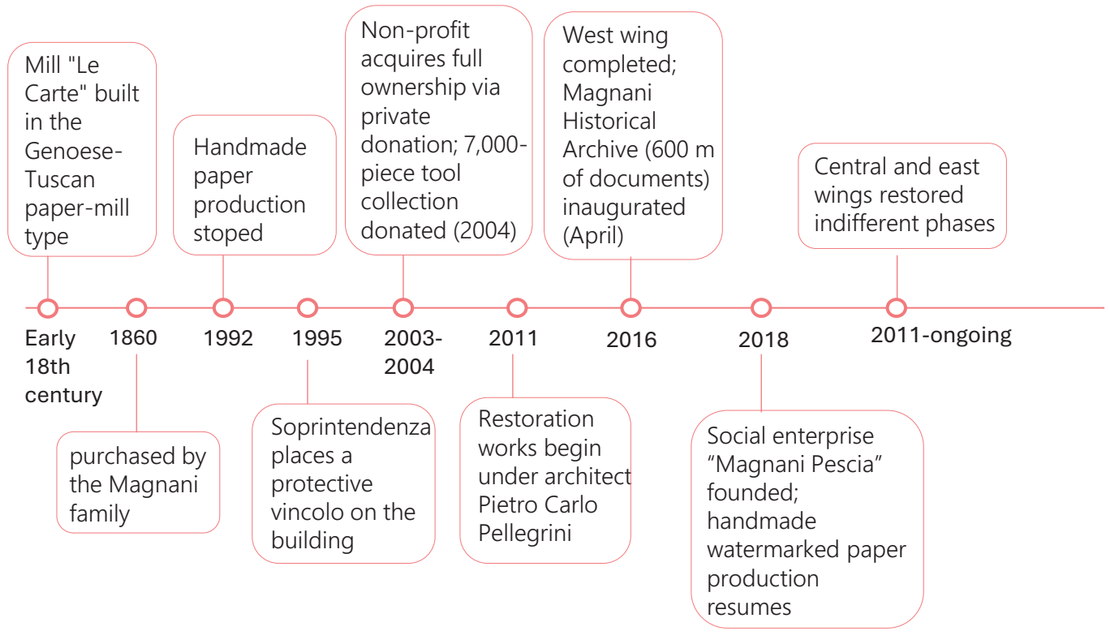


Fig 18.Aerial view of the former Le Carte paper mill complex in Pietrabuona, illustrating its linear layout along the Pescia River.



Fig 19. Interior of the Museum of Paper, preserving the original paper-making equipment and production spaces

2. Historical Timeline:



In 1860 the mill was bought by the Magnani family, who made it a centre of excellence in handmade paper; production continued by hand until 1992, for clients including the Italian State Railways, Alfa Romeo and the Banca d'Italia[22]. when it closed, it seemed the end of a centuries-old story. Preservation followed quickly. The building was placed under Soprintendenza protection in 1995 and acquired by the Associazione Museo della Carta di Pescia in 2004. a phased restoration by architect Pietro Carlo Pellegrini began, and in 2016 the first restored wing opened to house the Magnani Historical Archive of over 600 metres of documents.

Finally, in 2018 the museum founded the social enterprise Impresa Sociale Magnani Pescia, which revived handmade watermarked paper production under the historic Enrico Magnani Pescia brand, keeping the tradition alive not only by display, but by making.[22]

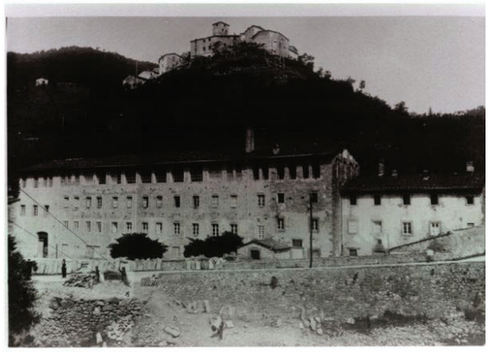


Fig 20.historical image showing the building on topography

3. Preservation, adaptive reuse rationale, and spatial change : The reuse of "Le Carte" followed a clear logic: the building could only survive if its original purpose survived with it. The decisive first step was protective ,in 1995 the Soprintendenza placed a vincolo on the mill, shielding it from incongruous change of use and steering its future in a heritage-led direction; the turning point came in 2004, when the Associazione Museo della Carta di Pescia acquired the building, partly through donation, giving a single non-profit body both the ownership and the mission to restore it [22]. The conservation led restoration, directed by architect Pietro Carlo Pellegrini, reorganised the mill into three wings while keeping its historic logic legible: the west wing (opened 2016) houses the Magnani Historical Archive, fitted out in natural wood and cardboard; the central wing holds the museum, where the original 18th and 19th century machinery , beaters, vats, wooden presses and hydraulic turbine, is reactivated in place so visitors follow the full papermaking sequence within the real production spaces; and the east wing, once the workers' apartments, becomes the entrance and services, with the top-floor spanditoio drying loft adapted for teaching and temporary exhibitions. Little was demolished: the intervention consolidated and reoccupied the existing fabric, keeping the original spatial hierarchy , production below, dwellings above, drying at the top ,readable. What makes Pescia distinctive is that the reuse revived the very activity the building was made for: in 2018 the museum founded the social enterprise Impresa Sociale Magnani Pescia, which, after retired master papermakers passed their skills to a younger generation, resumed handmade watermarked paper production under the historic Enrico Magnani Pescia brand , safeguarding not only the walls and machinery but the craft knowledge that would otherwise have been lost.

4. Architectural intervention : The restoration is phased and conservation led, directed by the named architect Pietro Carlo Pellegrini, and organised around the building's three historic bodies : the west wing, completed and opened in April 2016, houses the Magnani Historical Archive of 600 linear metres of documents; the central wing will house the museum proper with the reactivation of original machinery, including rag-tearing beaters and pulp preparation machines, together with the 7,000-piece collection; and the east wing will hold the entrance, ticketing and services[22]. works began early 2010 and have proceeded in phases, funded by a documented public-private mix including Arcus SpA (€2.5 million), Regione Toscana (€375,000) and the local savings-bank foundation (€50,000), within the "La Via della Carta in Toscana" territorial system.[22]

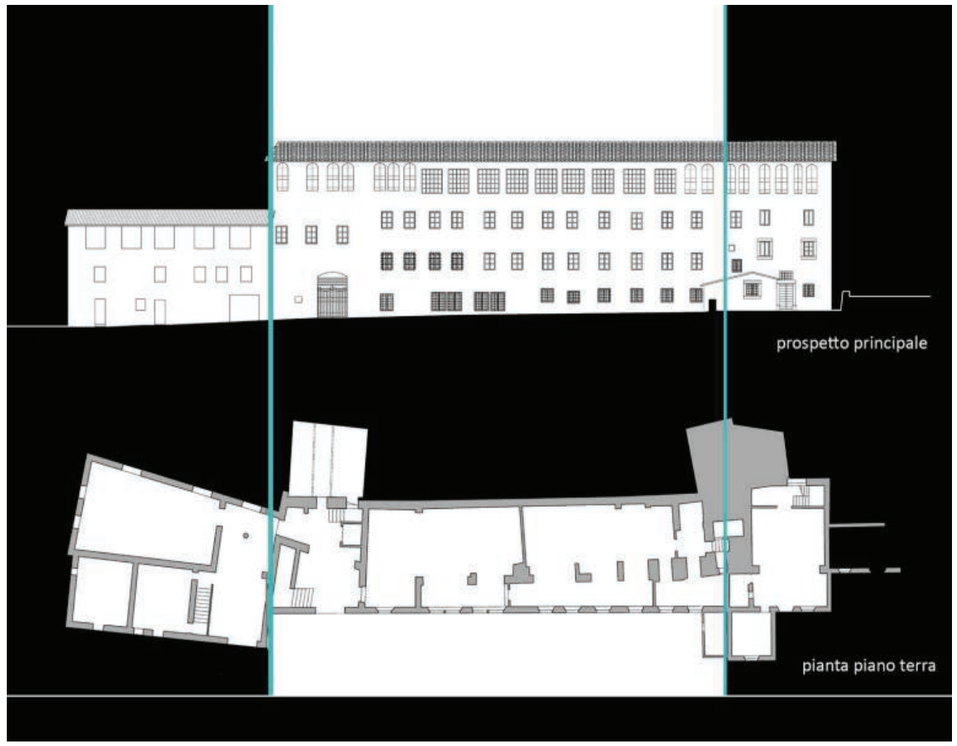


Fig 21.Ground floor plan and main elevation of the Museo della Carta di Pescia before the adaptive reuse intervention.

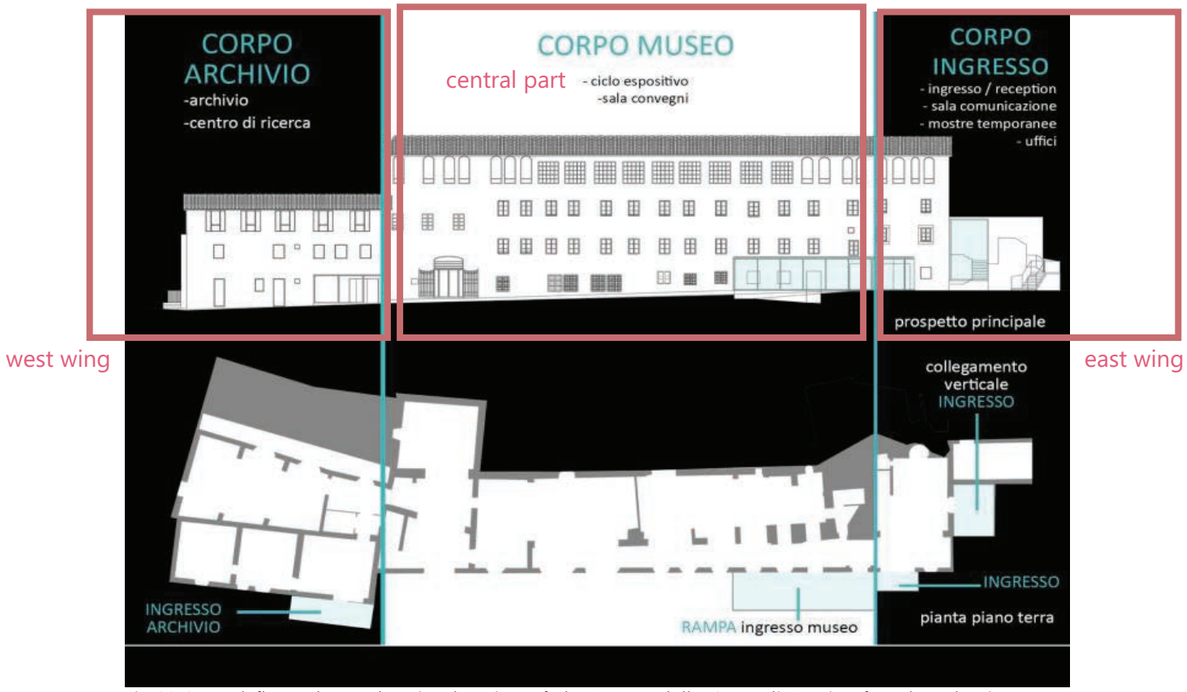


Fig 22.Ground floor plan and main elevation of the Museo della Carta di Pescia after the adaptive reuse intervention.



Fig 23.different elevation of museo delle carte



Fig 24.Magnani Historical Archives: Rendering of the consultation room

5.Relation with the water: water at Pescia was never simply nearby; it was engineered. The valley's mills drew their driving force from the Pescia torrent through a dense network of canals and gore , a sophisticated hydraulic system that carried water from stream to mill and threaded the whole valley into a single working machine. "Le Carte" stands where it does because of this: on the right bank of the valley floor, at the foot of the hill of Pietrabuona, near the centre of the paper district the torrent created. That logic is written into the building's section, a vaulted ground floor housing the phases powered by hydraulic energy, including the turbine that still survives among the machinery; above it the finishing rooms and the workers' apartments; and at the top the spanditoio, the drying loft with its large adjustable shuttered windows. Water rose through the building as work rose through it: force below, craft in the middle, air at the top. Crucially, the restoration did not clear this apparatus away to make room for the museum , it made the apparatus into the museum, keeping the machines in their original positions and restoring the central wing specifically to reactivate them, so that visitors follow the making of a sheet of paper in the very rooms where the water once did the work. Yet on the risk of flooding the sources are silent: no published source records a flood affecting the museum, nor any flood-protection measure adopted in the restoration. The map below shows the position of the museum in relation to the river.



Fig 25.map created by author used google earth

#04

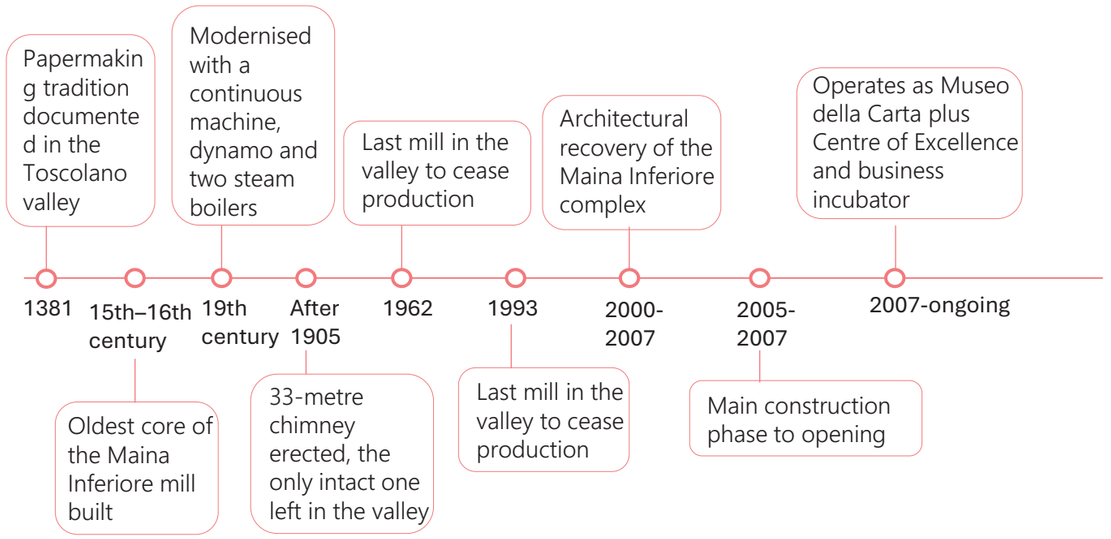
2.6.4 Cartiera di Maina Inferiore, Valle delle Cartiere, Toscolano Maderno, Italy

1. Introduction: The Cartiera di Maina Inferiore lies within the Valle delle Cartiere, a narrow gorge cut by the Toscolano torrent above Lake Garda that was, from 1381 onward, one of the most important papermaking districts in Europe. The case therefore operates at two scales at once: the valley, a linear industrial archaeology landscape in which a chain of former paper mills survives as consolidated ruins along the watercourse, conserved today as an open-air archaeological park named the Parco Valle delle Cartiere; and the building, the single mill ,Maina Inferiore, the last in the valley to cease production, in 1962, that was fully restored between 2000 and 2007 and adaptively reused as the Museo della Carta together with a paper-sector business incubator. This dual scale makes Toscolano an especially instructive precedent for the former Cartiera Crespi, that is also a single mill set within a wider valley of abandoned riverside factories: it demonstrates how one building can be recovered as a living cultural institution while the surrounding chain of ruins is preserved as a walkable heritage landscape organised by the river.[25]



Fig 26.2 image of the former cartiera maina inferiore over time (top image relates to 1961, bottom one is newly taken)

2. Historical Timeline:



The story of Maina Inferiore cannot be told apart from the valley that shaped it. Ever since 1381, when the first paper mill was recorded along the Toscolano torrent, papermaking spread through this gorge until, in the 1400s and 1500s, it became the beating heart of paper production for the whole Venetian Republic. Maina Inferiore was one of these mills, and its oldest rooms ,built in the fifteenth and sixteenth centuries , still form the core of the building today. Like the valley around it, the mill knew good years and hard ones: silenced by the plague of 1630, brought back to life at the turn of the eighteenth century, then slowly fading after Venice fell in 1797. Yet Maina Inferiore endured where others gave up, modernising with a continuous paper machine, steam boilers and, after 1905, the tall 33-metre chimney that still stands like a lone survivor over the valley. That stubborn persistence earned it a quiet honour: it was the very last mill in the valley still making paper when it finally closed in 1962. And because it held on for so long, the memory of its workers was still alive to be gathered ,which is why, today, it is inside these same walls that the story of the valley's papermaking is told.[25]



Fig 27. the Parco Valle delle Cartiere archeological park ,located in a linear area along the Garda river

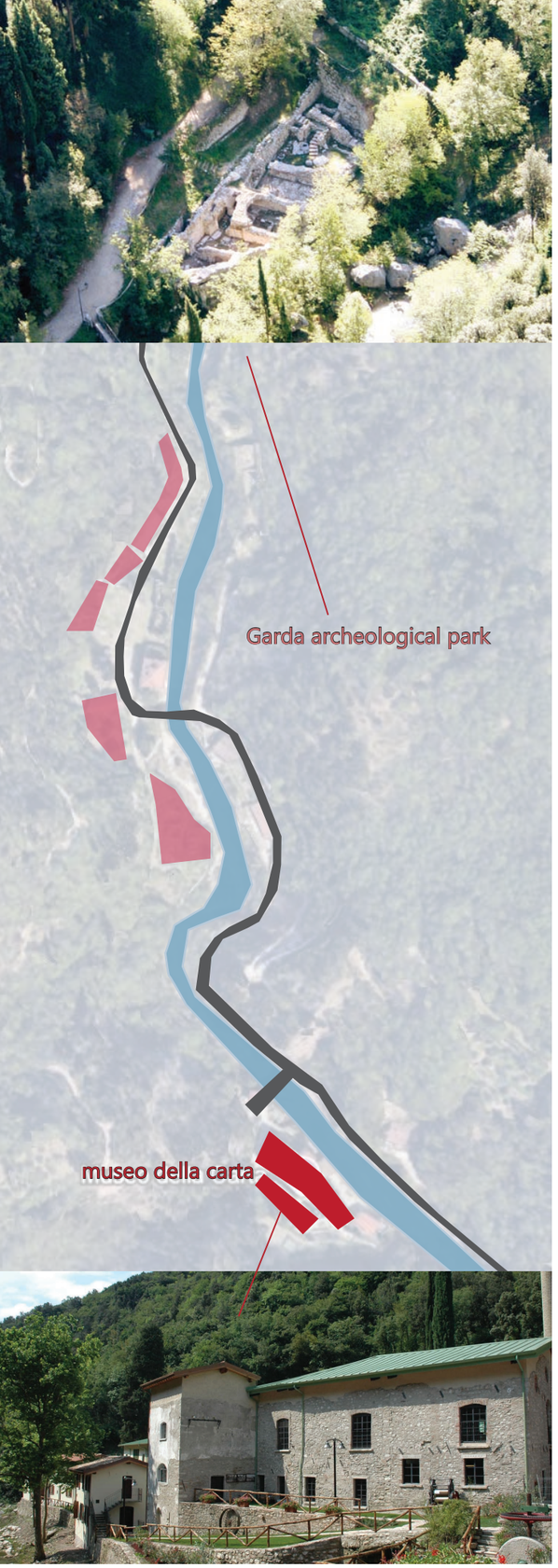


Fig 28. diagram map of valle delle cartiere with its Garda archeological park and paper museum in a linear shape along the river (created by author)

3. The adaptive reuse of Maina Inferiore and architectural interventions: The reuse turns on a single strategic decision: the building was not repurposed away from paper, but deeper into it. When the mill closed in 1962, the obvious moves were available , housing, tourism accommodation, or a straightforward museum-as-container. Toscolano rejected all three. It made the building the seat of a Centre of Excellence and business incubator for the paper print supply chain, alongside the museum. This means the mill hosts firms and craftspeople who still work with paper, so the building is not merely about an extinct activity; it participates in a living one.

That decision has spatial consequences. The reuse does not treat the mill as a neutral shell to be emptied and refilled: it uses the building's own production sequence as the visitor's route.

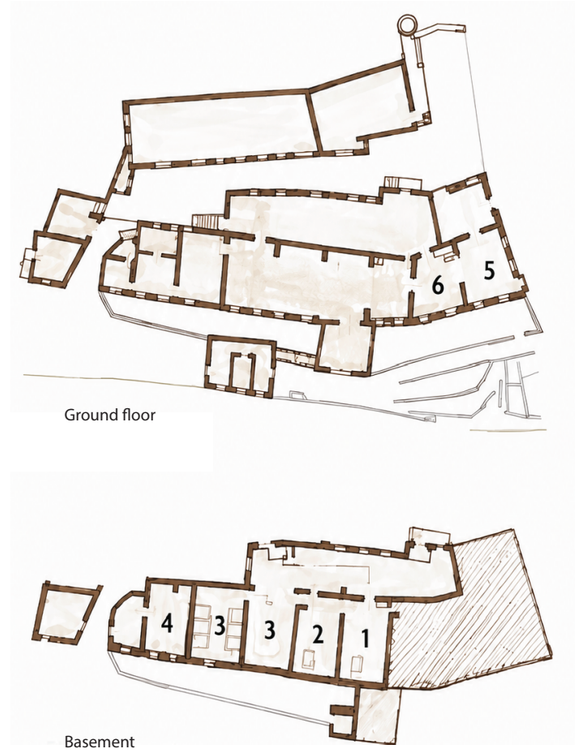
also Maina Inferiore is not treated as an isolated object. Because the Comune owned the entire valley, the restored mill could function as the anchor of a wider landscape strategy: the other mills, left as consolidated ruins, form an open air archaeological park stitched together by paths along the torrent. One reused building thus reactivates an abandoned territory , a single point of investment producing value across a whole valley. [25]

4. Arxhitectural intervention: The recovery of Maina Inferiore was carried out between 2000 and 2007, with construction running from April 2005 to the inauguration on 2 June 2007. Rather than conserving the mill as a relic, the project adapted it to hold several activities bound by a single theme , paper , and made the building's own history the structure of the visit. Nothing of significance was erased. The route begins in the 15-16 century core, where the original stone vats for macerating the rags remain exactly where they always stood, and climbs through the wide upper halls once used for drying and finishing, so that the visitor unknowingly retraces the path a sheet of paper once took.[25] finally the nineteenth century industrial layers kept just as carefully and the nineteenth-century industrial layers were kept just as carefully, and the intervention reached beyond the mill itself to preserve the surrounding landscape.

5. Relation with the water: The Toscolano is a steep pre-Alpine torrent, and the valley's entire history is inseparable from it. The mills existed because of its force: an industry so dependent on falling water that, as the sources put it, papermakers accepted a narrow and inconvenient valley simply because the torrent was there. That dependence explains both the valley's rise and its end: when hydraulic power was



Fig 29. interior space of museum of paper



these mark where each piece of papermaking equipment sits inside the museum The caption explains they are plans of the Paper Museum showing the room containing:
1.the torchio (the press)
2.the tina (the vat)
3.the maglio (the water-driven hammer/beater)
4.the maceration vats
5.the tools for smoothing
6.the "caldare" for sizing/gluing

Fig 30. diagram map of paper museum with the location of the machineary and interior layout

finally reduced to feeding three hydroelectric plants and lost any direct relationship with the production process, the one reason to remain in the gorge disappeared, and in 1962, the same year the Ponte Cola dam in Valvestino tamed the torrent's flow, the last mill, Maina Inferiore, closed its doors.[26]

Yet the torrent that gave the valley its industry never stopped threatening it. The 2000–2007 recovery of Maina Inferiore restored the building magnificently and reopened the valley as an archaeological park, but it did not address the site's exposure to water. The consequence became clear in autumn 2014, when a flood struck the valley and water and mud invaded the Centre of Excellence at Maina Inferiore, inundating the halls of the Museo della Carta itself. Today the Comune periodically closes the entire valley to vehicular and pedestrian traffic , and the museum with it ,during hydrogeological emergencies, and has on one occasion issued an evacuation ordinance for resident families. [25]

The site is managed through emergency response rather than through design: when a storm comes, the valley is closed and evacuated. That is a procedural solution, not an architectural one, and it leaves the building itself without defence. an exemplary heritage recovery can still be compromised in its long-term operation if flood risk is treated as an external condition rather than as a design problem.



Fig 31. interior space of the museum



Fig 32.Hypothetical reconstruction of a traditional paper mill in the Valle delle Cartiere, illustrating the relationship between the watercourse, hydraulic wheels, paper-making spaces, and the production process



Fig 33. interior space of the museum

2.6.5 conclusion of the case studies

Although the 4 case studies differ in their historical context, scale, and adaptive reuse approach, they reveal several common principles that can guide the regeneration of the former Cartiera Crespi.

The first and most important lesson is that successful reuse begins with understanding the identity of the place: In all four cases, the industrial character was preserved rather than replaced: original buildings, construction materials, machinery, and spatial organization were maintained as evidence of the site's history, allowing the industrial heritage to remain visible while supporting new uses. conservation, in other words, need not prevent change; it can instead provide the foundation on which change is built.

Another shared characteristic is the introduction of new functions that respond to contemporary needs. none of the projects rely solely on museum activities. instead, they combine cultural, educational, commercial, recreational, and community functions to create places that remain active throughout the year. this functional diversity not only improves economic sustainability but also strengthens the relationship between the site and the local community.

While each case follows a different design philosophy, they all demonstrate that new interventions should respect the existing industrial fabric. Contemporary additions are carefully integrated without competing with the historic structures, allowing visitors to clearly distinguish between the original architecture and new interventions. This balance between preservation and transformation is one of the most valuable lessons emerging from the comparison.

At the same time, there are warnings in these instances. out of the four mills, three (Pescia, Toscolano, and the Cartiera Crespi it self) are situated on river banks that are really vulnerable to floods. the case of Toscolano is an example of what can happen if flood risks are ignored: its reconstruction has been completed, but now missions are run in valleys whenever floods rise since the authorities have treated flooding as an unforeseen calamity rather than an engineering issue.

The comparative analysis provides several strategies that can be applied to the former Cartiera Crespi:

1. the industrial identity of the complex should remain the guiding principle of the project, preserving its significant buildings, materials, and spatial character.
2. the site should accommodate a mix of complementary functions that encourage daily use while ensuring long term economic viability.
3. the connection with the Olona River should be strengthened through landscape improvements and accessible public spaces, reinforcing the historical relationship between water and paper production.
4. regeneration should focus not only on preserving physical structures but also on creating meaningful experiences that reconnect people with the site's history.

Overall, these case studies demonstrate that adaptive reuse is most successful when heritage conservation, environmental quality, and contemporary social needs are considered together. rather than preserving industrial sites as static monuments, they show how abandoned factories can become active places that continue to contribute to their communities while maintaining their historical identity.

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- Map n.01 : map of the ex Cartiera Crespi area. Author's elaboration based on based on Regione Lombardia, DUSAF 2021 (v. 7.0)
- Map n.02: Terittorial map, map of land use, infrastructure and urban fabric, and map of function, Author's elaboration based on data from Regione Lombardia Geoportale ,Open Street Map and Google earth, 2026

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- Figure n.01: Olona valley long section diagram, Author's elaboration, 2026
- Figure n.02: Historical map of the natural islands of valle olona, Source: Machado Bastos 2013. p.82
- Figure n.03: Historical Site plan of the former Cartiera Crespi. Source: Machado Bastos 2013. p.82
- Figure n.04: Former verla board mill: https://www.verla.fi/en/architecture
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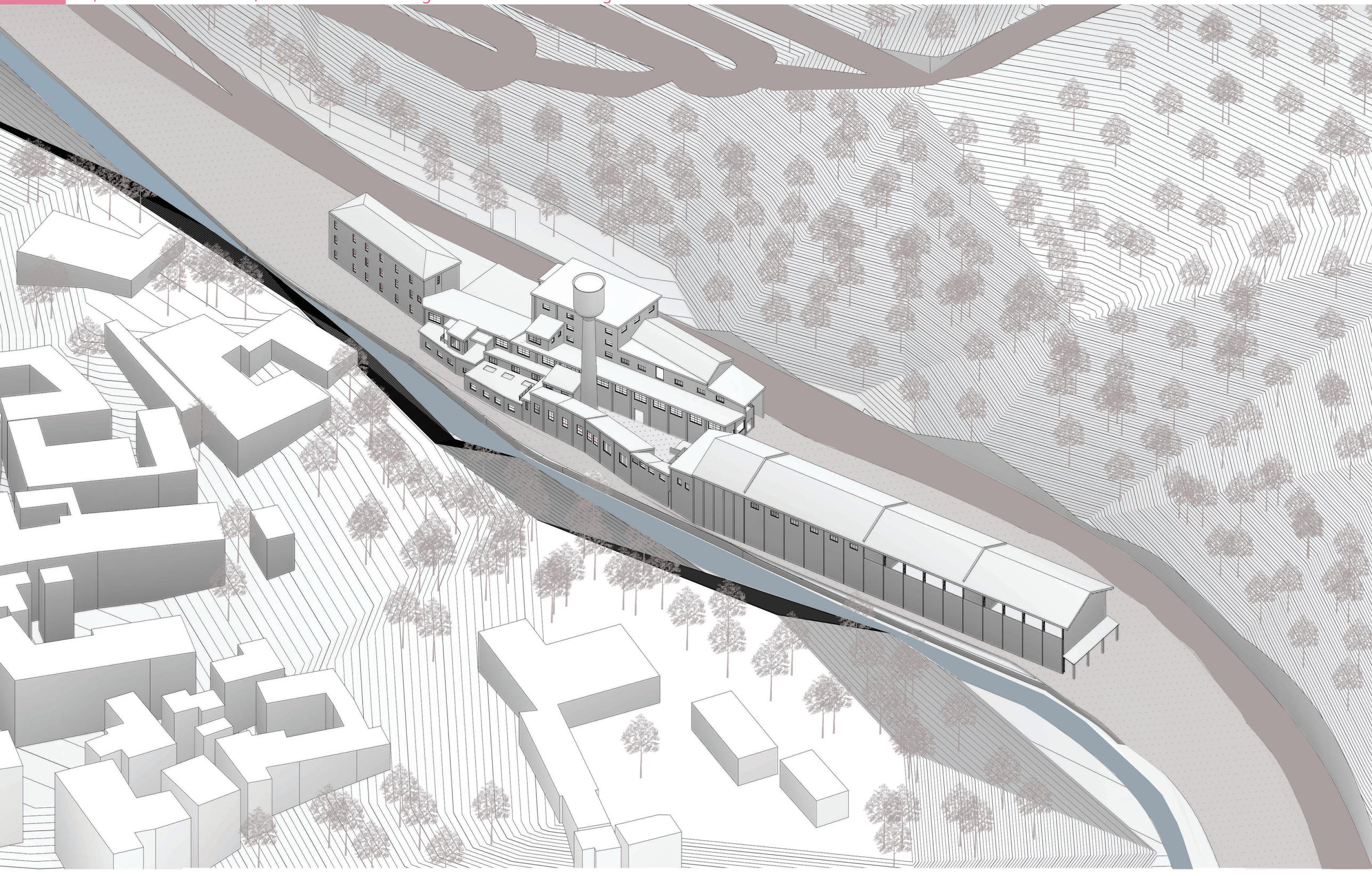
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- Figure n.26 : https://www.valledellecartiere.it/it/la-storia-della-valle
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- Figure n.29: interior space: https://www.valledellecartiere.it/it/fondazione-valle-delle-cartiere
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03

ARCHITECTURAL DESCRIPTION

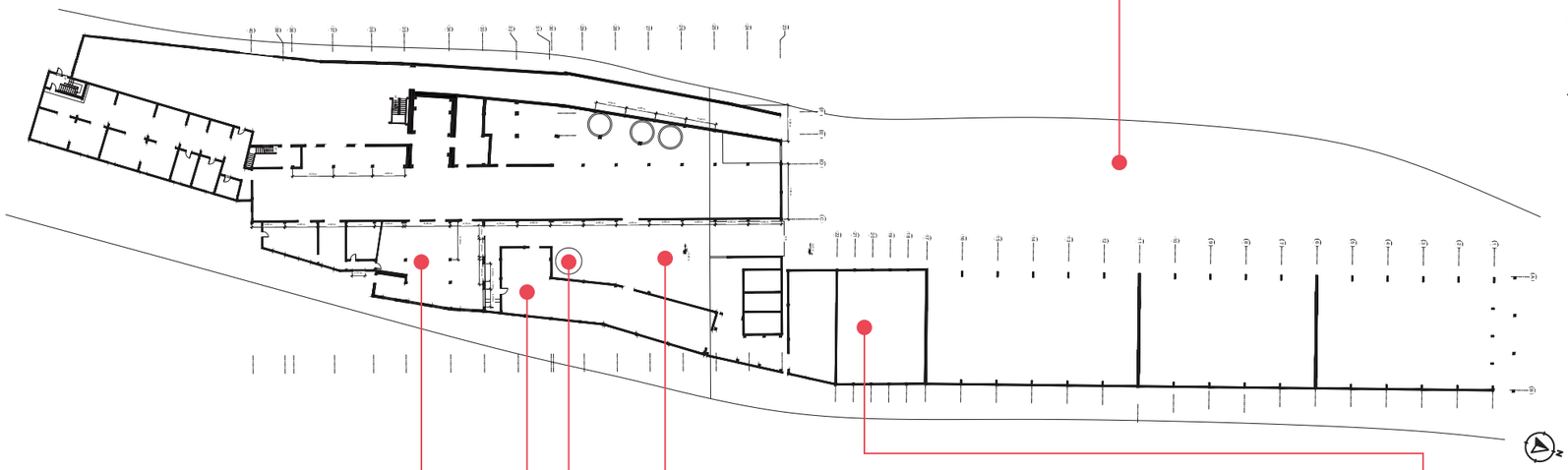
3.1 Existing situation of the building and documents
3.2 Demographical and Social analysis
3.3 Finall Proposal Idea
3.4 Conclusion
3.5 Reference

3.1.1 Existing Situation of the Building and Documents : Axonometric View



3.1.2 Existing Situation of the Building and Documents : Spaces

The Cartiera Crespi complex encompasses 12 distinct functional areas distributed across multiple levels. a complete set of pictures showing both interior and exterior views will be provided.



5 Newly Added Building: This building did not exist in the available documentation until 2013–2014. as shown in Picture of number 3, "Internal Courtyard" ,the area was previously empty. one assumption is that the building was constructed by the new owner



Shed **6**





4 Reinforced Concrete Elevated Water Tower: This tower is approximately 29 m high and was probably used for industrial process water, pressure stabilization, reserve water storage, and fire-protection supply. before the construction process, the municipal Commission issued a favorable opinion regarding the proposed structure; however, it stipulated that further approval from the heritage authority was required due to the potential visual impact of the construction. subsequently, the Lombardy heritage authority granted favorable approval for the construction of the elevated water tank, following a thorough evaluation of its environmental and visual impact on the surrounding context



3 Internal Courtyard: This compact courtyard is accessible by a short sloped ramp, which serves as a transitional connection between the two courtyards and is near the newly added building and the main production hall





Entrance Courtyard: This courtyard area is near the roofed outdoor storage and used to be near the entrance, according to the old documents from 1960





2 Storage: was built on 1964

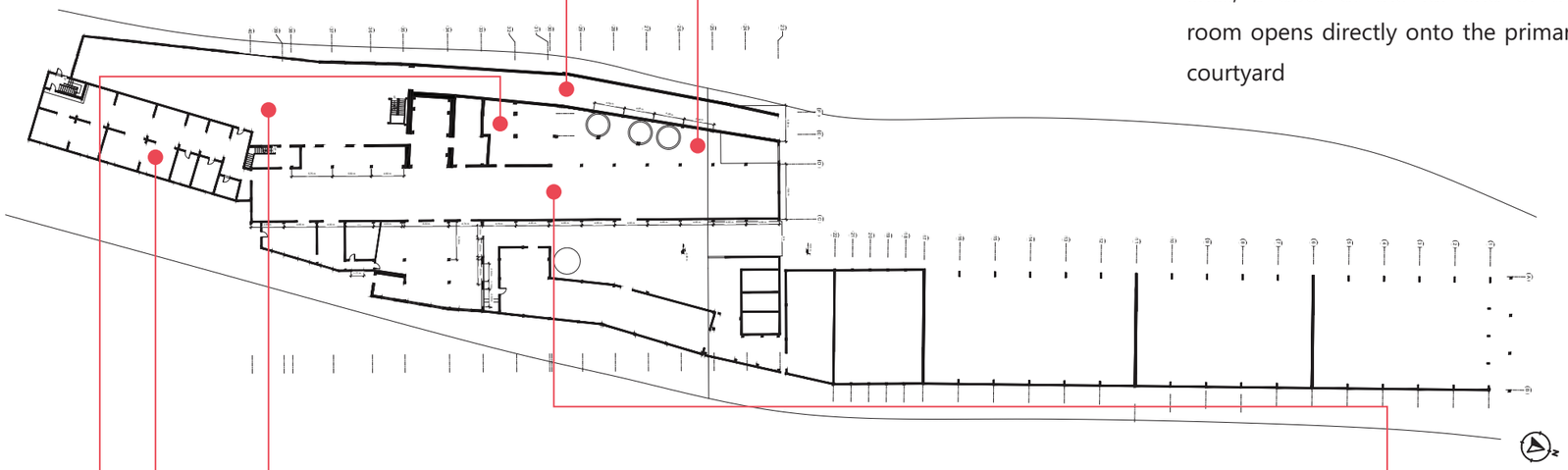






Machinery Corridor: The outdoor corridor that used to serve as a passage for machinery transit

11



12 First Floor: As indicated by the red lines, a door at the far end of the room opens directly onto the primary courtyard



10 First (bottom image) and Second Floor (top image) in Interior View: The large machine on the second floor, almost certainly an industrial vat (tina), was used for paper production. according to available videos, the vat was still left in the second floor until 2020





9 Shed Side: Being close to both the production hall and the storage spaces, the shed-side area, more clearly identifiable in the top image, incorporates a small secondary space that was likely designed to function as a security control room. A metal staircase at the far end of the space further establishes vertical circulation, connecting the entire ground floor to the upper floors







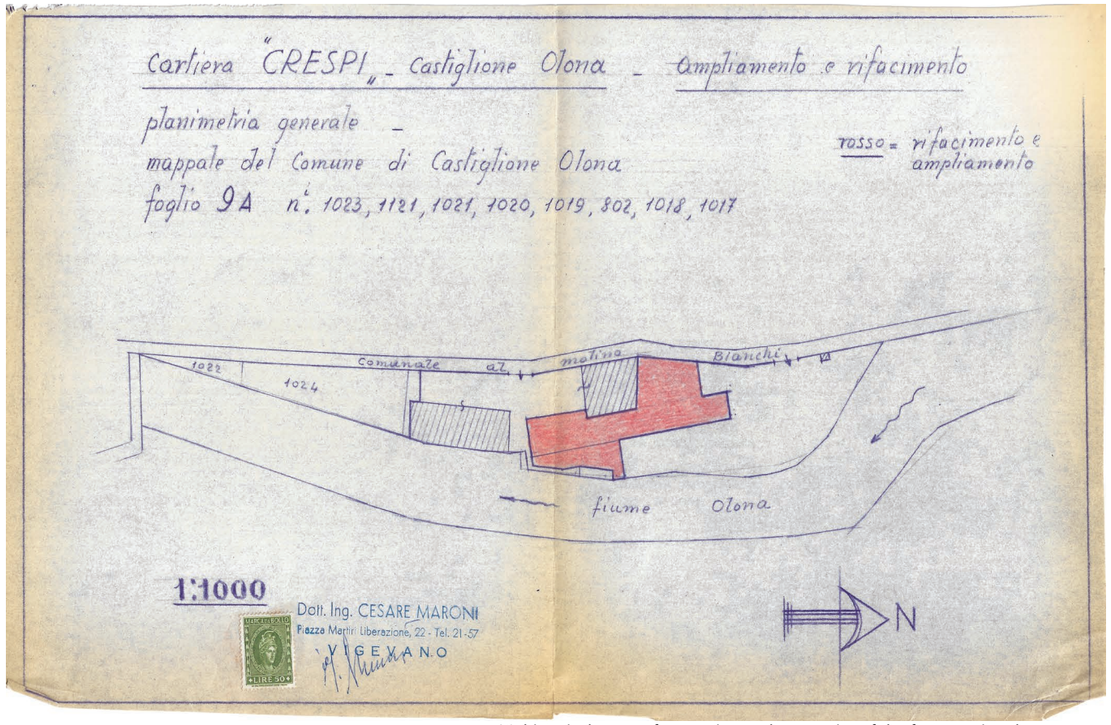


8 Office, Storage, Service Rooms, and Workers' Living Area: The space is organized across three floors. The ground floor consists of notably dim rooms and tunnel-like spaces (top image), presumably used for storage, distinguished by their characteristic dome-shaped entrances (top picture). the first and the second floor was dedicated to service rooms , residential quarters for the workers and administrative offices (bottom picture)



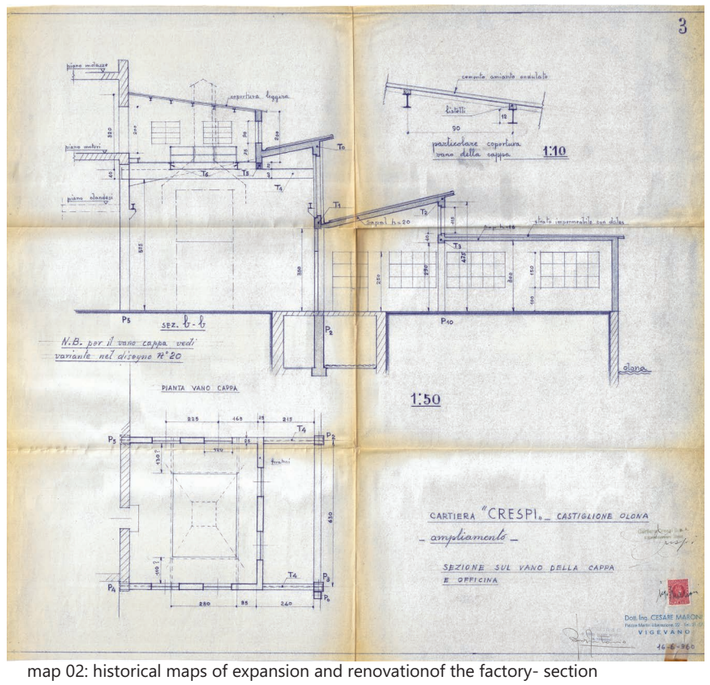


7 Linear Area of Production: production area with using machinery (top picture), the supervisory chamber from which the foreman would monitor and evaluate the workers' productivity and performance (bottom picture)

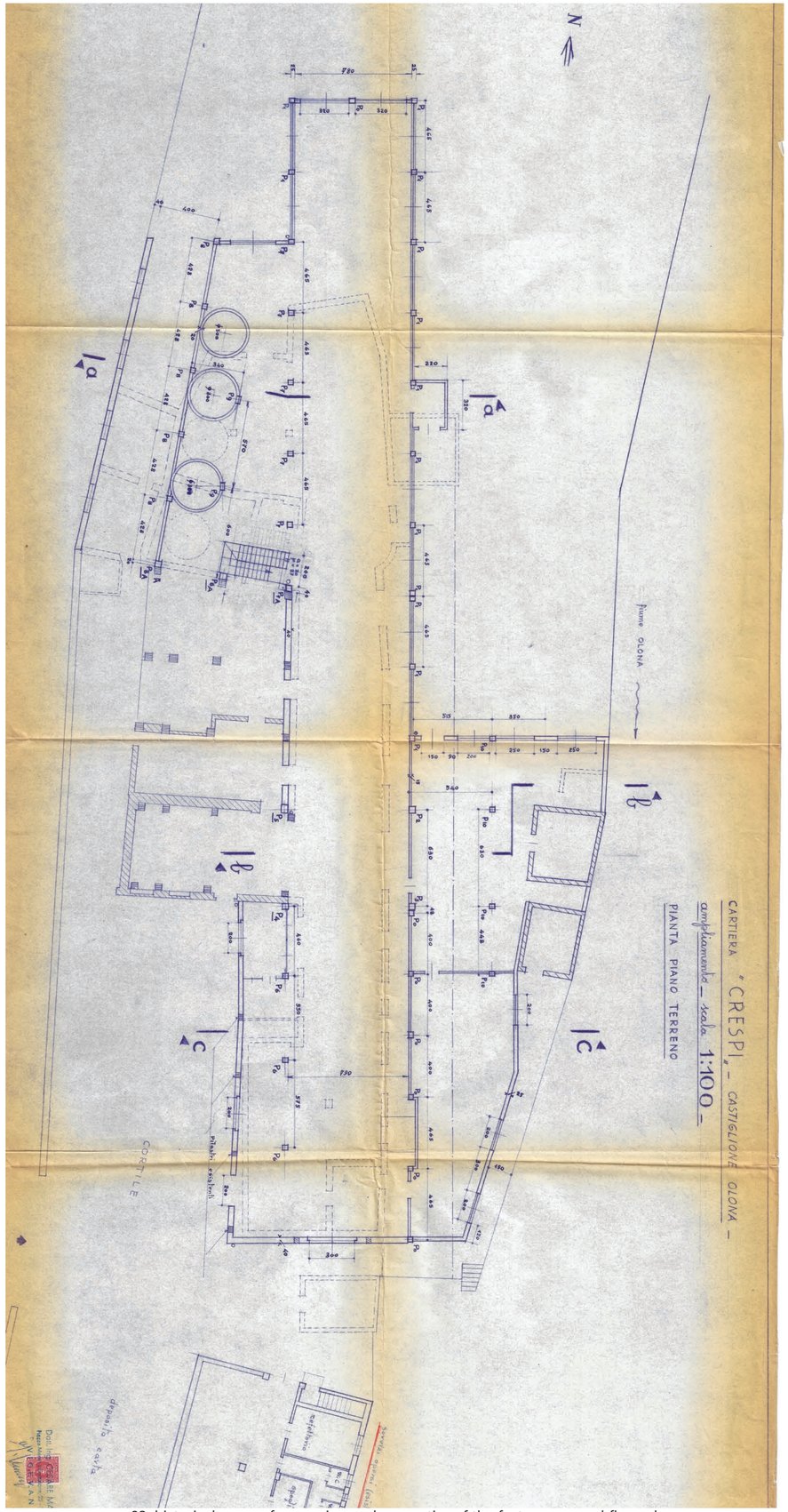


map 01: historical maps of expansion and renovationof the factory- site plan

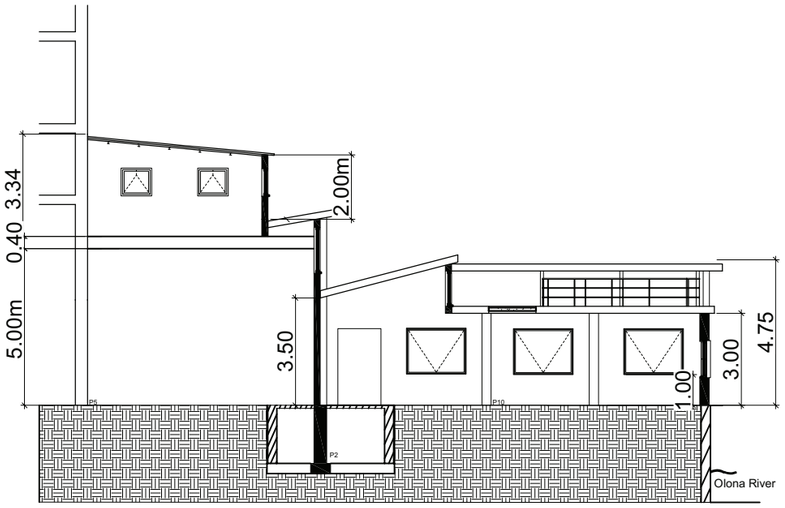
Through direct contact with the Comune di Castiglione Olona, it was possible to access a range of administrative documents (as they are reperesented in this page), including building permits, correspondence related to modifications and expansions of the industrial complex, and partial cartographic records. however, given the considerable age of the complex, the documentary record is far from complete (many original construction documents have not survived, leaving significant gaps in the archival evidence). a selection of this retrieved documents is reproduced in the following pages as illustrative examples of the available primary sources.



map 02: historical maps of expansion and renovationof the factory- section

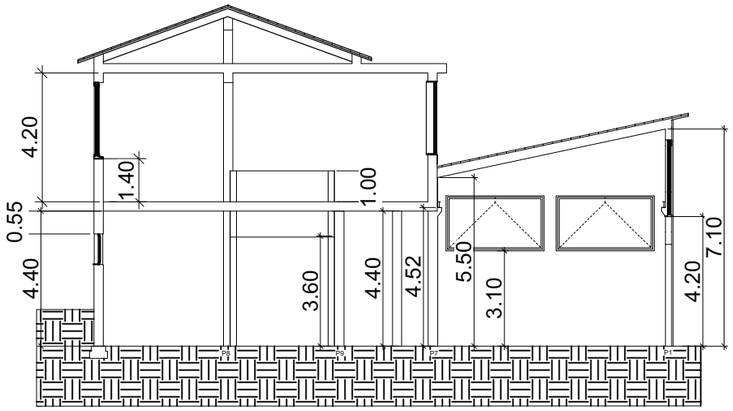


map 03: historical maps of expansion and renovationof the factory- ground floor plan



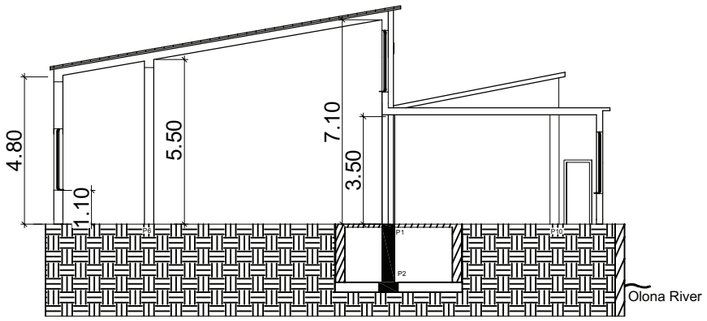
Section L-L
1:200

0 2 4 6 8 10 m



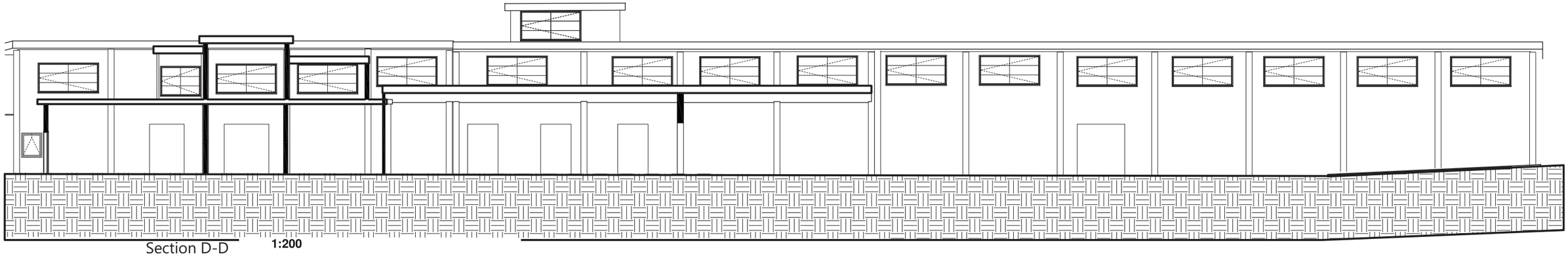
Section a-a
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Section c-c
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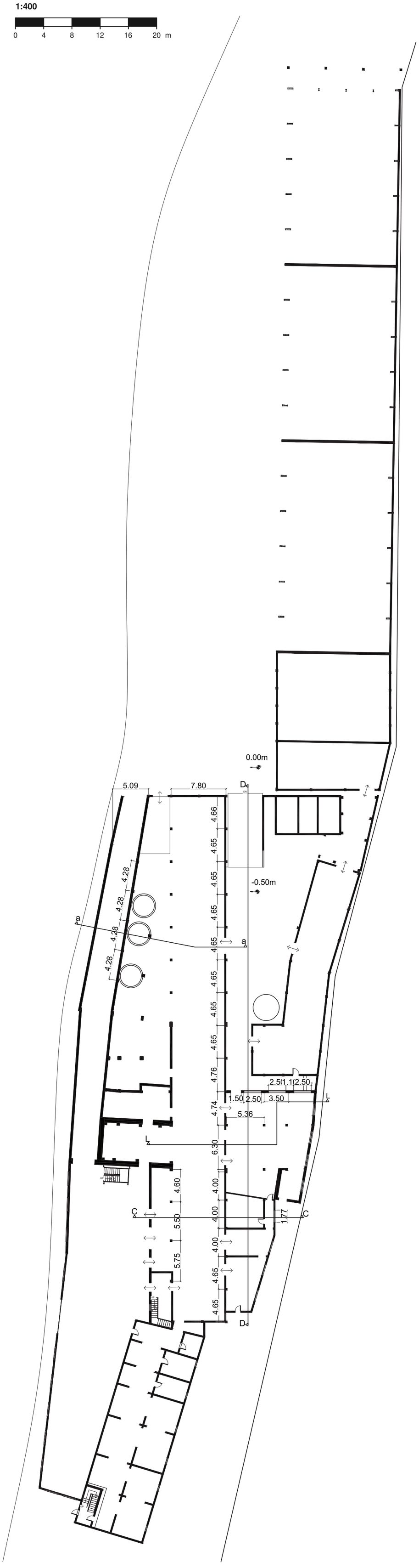
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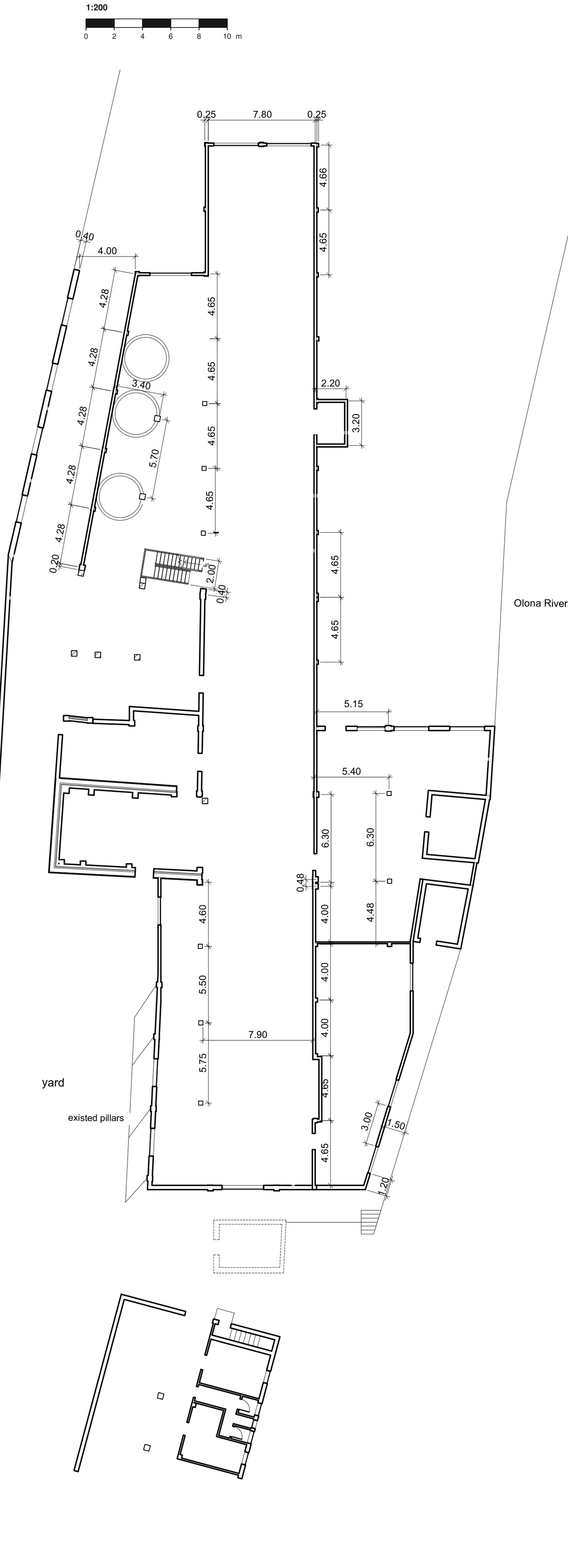
Section D-D
1:200

0 2 4 6 8 10 m

The existing situation of the whole building



The redraw version of available existing historical document of manucipality of the Castiglione Olona



3.1.4 Regeneration objectives and challenges of the former Cartiera Crespi

parameter	data
building /complex	former Cartiera Crespi
Location	Via Armando Diaz, Castiglione Olona (VA)
construction	1930s
main industrial phase	From approximately 1950
Last dismission	1990
Land area	approx. 7,872 m^2
Covered area	approx. 4,921 m^2
Gross floor area (SLP)	approx. 9,842 m^2
Main construction system	Continuous load-bearing masonry
parameter Heritage status	Industrial-heritage elements + landscape protection
Main heritage issue	Balance between recovery of historic buildings and replacement/transformation of less compatible fabric

According to document of Schede degli Ambiti di Rigenerazione of 2023 of the municipality of Castiglione Olona, it identifies the former Cartiera Crespi as ARIG 1-Ambito di Rigenerazione, covering approximately 7,869 m^2 along the Olona river. one of the main problems identified by the municipality is heritage significance and quality of the existing construction. the city does not treat all constructions alike. for example, **buildings with historic or architectural significance should be repaired while elements that do not match with the environment could be changed** subject to respective regulations laid down in the PAI. future actions should also be justified with the historical information about buildings and town development over time. this approach provides a basis for a concept of selective preservation and transformation instead of total preservation versus total reconstruction of the existing structure.

The municipality has given emphasis on establishing the relationship again between the "Cartiera" and the Olona river. the main goal of the effort is **characterizing an aesthetically pleasing relationship with the river and its environment in plain sight**. the complex can be observed from the elevated settlements of Castiglione Olona and Gornate Superiore, thus the in-depth improvement of facades and roofing is also essential.

The municipality has pointed out one of the key concerns it encounters at the site. though some extraordinary maintenance steps are being taken and the site is no longer qualified as fully abandoned, its spatial arrangement continues to be highly impermeable. About half of the area is covered with buildings, while in excess of 90% of the whole site has been rendered impermeable. given the property's proximity to the Olona, this situation indicates significant environmental and landscape challenges. thus, the municipality **regards partial de-impermeabilisation as one of the main tasks in the process of the site's regeneration.**

From a functional viewpoint, the comune does not mandate a single use of the Cartiera in the future. instead, it permits **multiple functions using a Programma Integrato di Intervento (PII),** whilst disallowing new industrial production activities, logistics and road transport activities, and medium retail. the PII also analyses the connection of the site to the Valmorea Cyclepath, identifying the **cycling-related services as possible examples of exploitation of the connection.**

Overall, the expectations of the municipality can be summarised in four key directions: preservation of historically significant elements, enhancement of relationships with the Olona river and the surrounding landscape, reduction of the excessive impermeability of the site, and introduction of new functions that fit well with the peculiarities of the site. Therefore, these conditions form a basis for the transformation of the former Cartiera while preserving its industrial characteristics. thus, the regeneration project may see the site as a possibility to link the industrial heritage with the river landscape and modern public activities, transforming the existing complex from being an isolated remnant of the industrial past into a vibrant part of the territorial and cultural life of the Olona valley.

3.2 Social Analysis

Introduction :The Cartiera Crespi does not stand on its own. It lies at the foot of the Olona valley, in a landscape once defined by its mills and workshops, on the edge of a town that has grown quieter with each passing decade, and beside a river whose presence still governs what the ground can hold. Whatever the building becomes will depend on these surroundings far more than on the rooms and structures within it , because "a factory left empty for thirty years"is not waiting to be restored to what it was, but to be given a reason to exist again.

That reason cannot be assumed in advance. It has to be found in the place, in who lives in Castiglione Olona today and how the town has changed, in what its inhabitants no longer have within reach, and in what still passes through the valley each day without stopping. Only once these things are understood , it become possible to say what kind of life the old mill might reasonably hold and to reach a proposal that belongs to the site.

The Valle Olona was, for a long time, a place that produced, the thing that gave the valley its name and its rhythm. That was its character that shaped the towns strung along the river Castiglione Olona among them. The Cartiera Crespi was one expression of it, the productive life ran the length of the valley. Today that character has faded. The factories that defined the place have largely fallen silent, and what remains is a landscape that still looks industrial without the work that once filled it. The valley has kept the form of a productive place while losing its substance. It is this gap between what the valley was and what it now is, that the following analysis sets out to understand.

The design proposal advanced in this thesis rests on a set of assumptions about the people it is intended to serve and the territory in which it sits; before those assumptions can be relied upon, they need to be tested against evidence. This part of the study therefore examines the demographic, economic, and mobility conditions of Castiglione Olona and the surrounding Valle Olona corridor, considering only those dimensions that bear directly on the feasibility and orientation of the proposed programme. The age structure of the local population is examined first, since the programme depends on knowing whivh groups are in fact present and increasing. Total population and its recent trend follow, as they define the catchment from which the project would draw its users and indicate whether that base is stable or in decline. Local economic and artisanal activity, drawn from the Camera di Commercio di Varese, is then assessed and totally, data and information about the area is collecting in this chapter that each of these dimensions is analysed in turn in the sections that follow, and the findings are carried forward into the definition of the design brief.

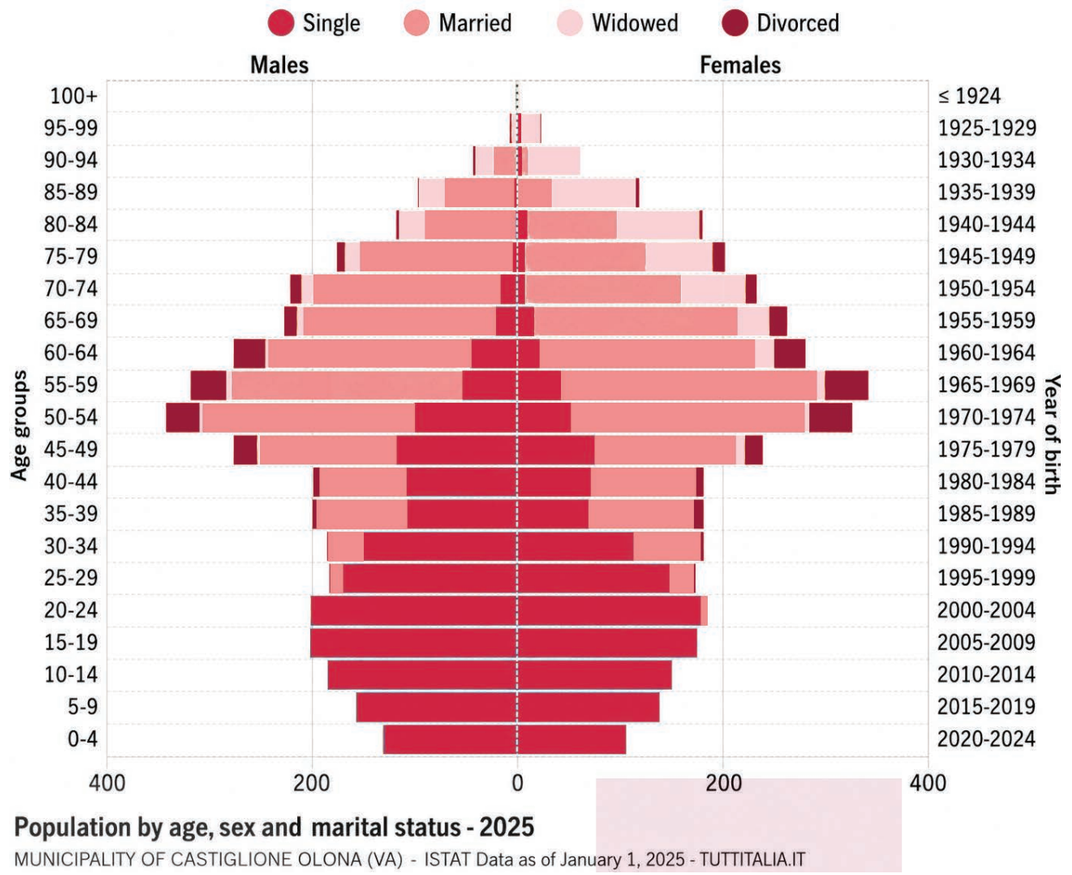


Fig 01. population analysis chart

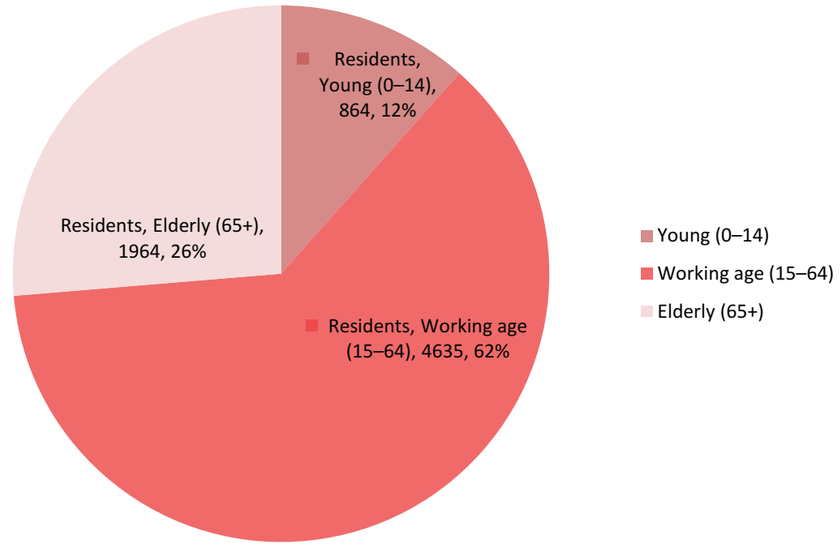


Fig 02. age group of castiglione olona 2025 (Author's elaboration based on ISTAT and tuttitalia data)

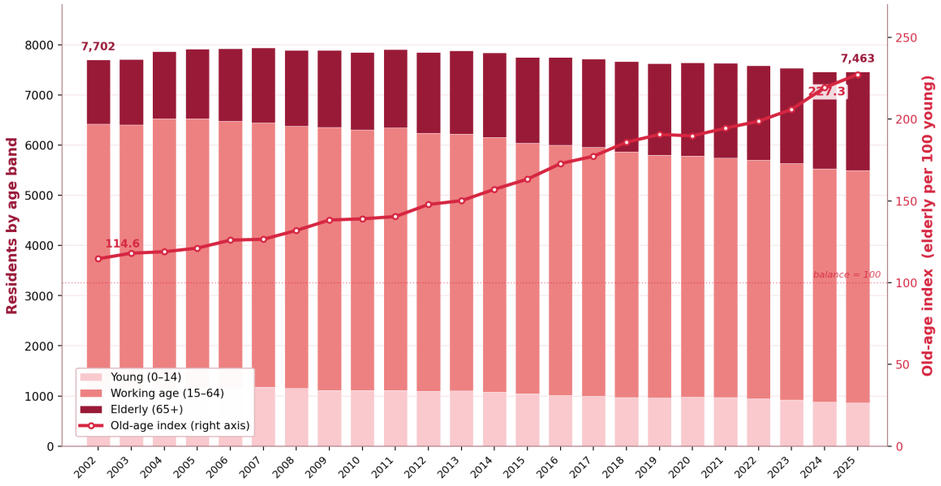


Fig 03. population structure + old-age index, 2002–2025 (Author's elaboration based on ISTAT and tuttitalia data)

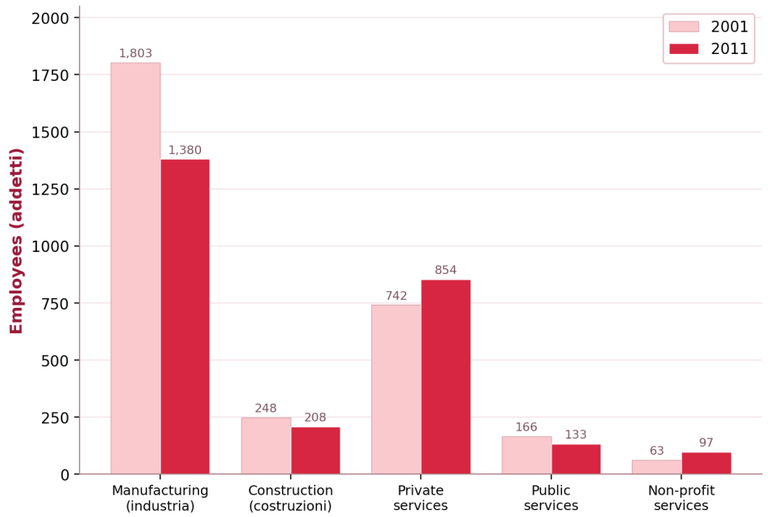


Fig 04. employment by sector in 2001 vs 2011_ Castiglione Olona

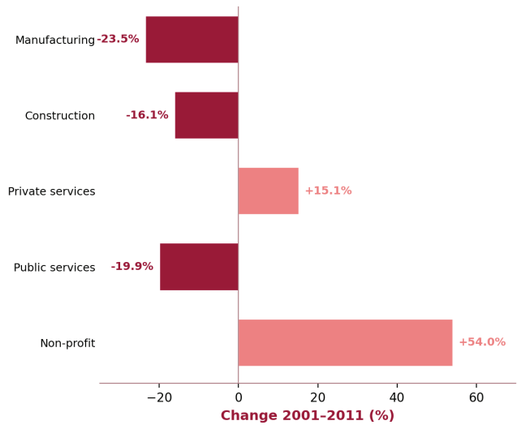


Fig 05. Change in employment by sector, 2001–2011_ Castiglione Olona



The figures 01 to 03 together describe the population of Castiglione Olona and how it has changed. Over more than two decades the total population slowly contracts, from 7,702 to 7,463, while its balance shifts steadily toward the older age groups. The pyramid (Fig. 01) confirms this at a single moment. The population is concentrated most heavily in the 45 to 64 range, with the largest groups in their early fifties, and the elderly remain numerous well into the eighties. The younger groups are clearly thinner, children under five are the smallest group of all, and young adults in their twenties and thirties are relatively few, pointing to a community that is ageing and no longer fully replacing itself.



The two charts trace the economic transformation of Castiglione Olona between the 2001 and 2011 censuses. The first compares employment across sectors at the two dates, and the second expresses the same movement as a rate of change. Together they show that the town lost a significant share of its jobs (from 3,022 to 2,672 in total) with the losses falling squarely on the productive sectors that had long sustained the local economy. Manufacturing, by far the largest employer, contracted by almost a quarter, from 1,803 to 1,380 positions, and construction declined by a further 16%. The service sectors moved in the opposite direction, private and non profit services in particular growing over the decade, yet their gains remained too small to compensate for the scale of the industrial loss, so that the overall balance stayed clearly negative. Read side by side, the charts describe more than a fall in numbers: they capture a structural shift in the town's economic character, as its manufacturing base , once the centre of its working life ,receded without a comparable activity rising to replace it.

Taken together, these two readings describe a single condition: Castiglione Olona is a community that has grown older as it has grown smaller, and whose historic productive life has receded without a new one taking its place. Yet the two trends are not separate: the generation now most numerous in the town is precisely the one that lived and worked through its industrial period, when manufacturing was the centre of local life. As that generation ages, what risks being lost is not only their number but the manual knowledge and productive experience they carry, a working culture that shaped the town for over a century and, with the decline of its industry, has no evident means of continuing. The analysis therefore points beyond the figures themselves. It identifies not merely a problem of decline to be managed, but a resource quietly at risk: a community whose oldest members remain its richest link to a productive identity the town has otherwise lost.

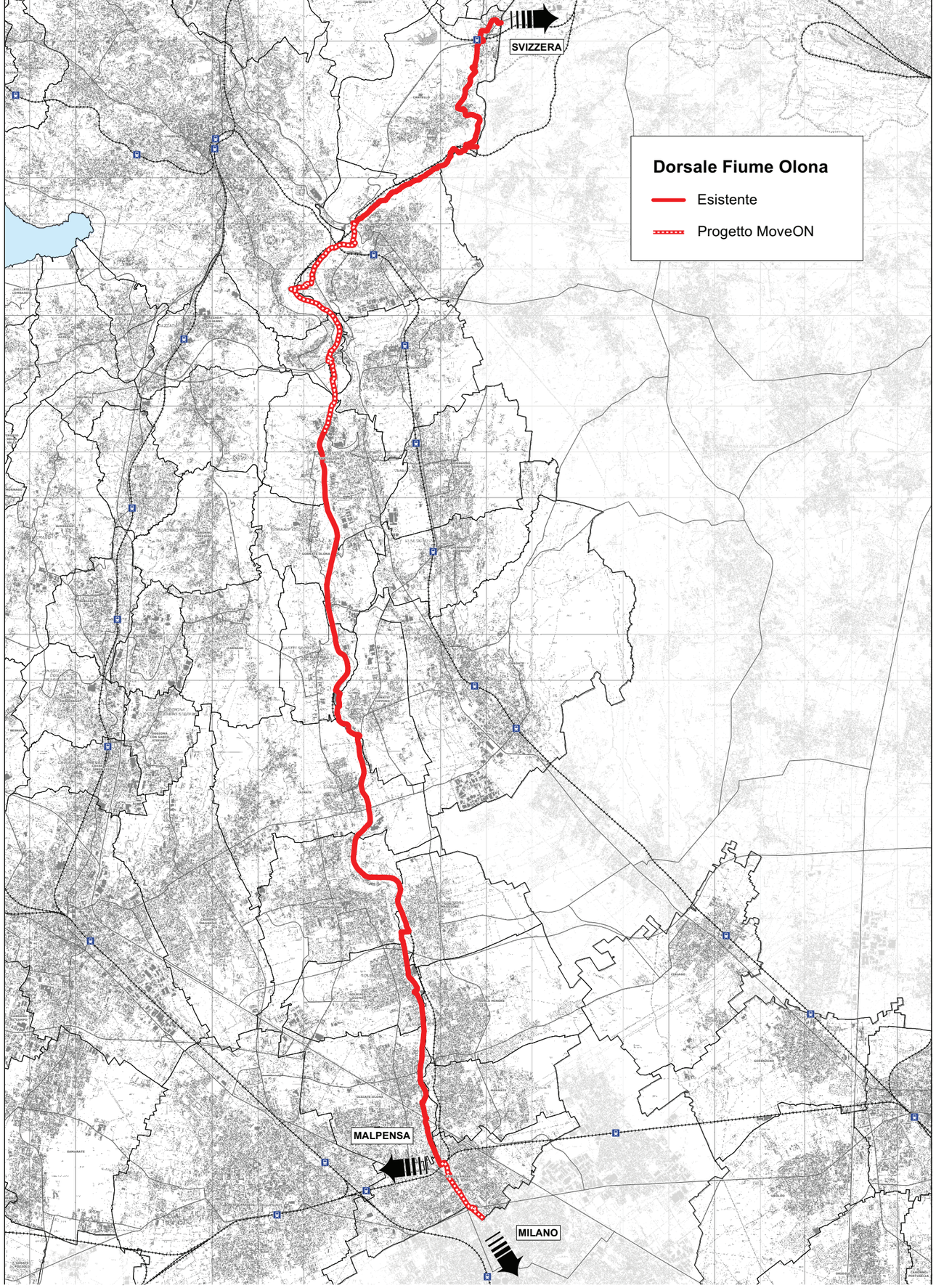


Fig 06. The Valle Olona cycle route (PCIR n. 16), Milan to Switzerland

Alao a closer reading of the site's surroundings brings a significant element to light: a cycle path runs directly alongside the former Cartiera Crespi, following the floor of the Olona valley. What appears at first as an ordinary local path proves, on examination of the municipal maps, to be a segment of the Valle Olona cycle route , laid along the trackbed of the former Valmorea railway, the line that until its closure in 1977 connected Castellanza, near Milan, to Mendrisio in Switzerland.

In the Piano dei Servizi ,the cycle network is drawn in two states: the existing paths(▬) distinguished from the planned extensions(▬), beside the former Cartiera Crespi the line shows an existing, already-realised path in use today , while a planned extension continues just beyond it.

The site is therefore situated directly upon a functioning stretch of the route, at the very point where the completed network meets the sections still being built. This is no minor local lane: it forms part of the Regional Cycle Route PCIR n. 16, already envisaged since 2014 in the Regional Cycle Mobility Plan, and completed through the province's "MOVE ON" project so as to run the full length of the Valle Olona and beyond(northward from Gaggiolo toward Switzerland and EuroVelo 5, and southward from Legnano toward Milan and the national "Vento" cycleway).

A trace of the railway's own history persists nearby, in the former Castiglione Olona station on Via Diaz, one of the few buildings along this stretch spared from demolition and today kept in use as the seat of a local heritage association.

Read in this light, the site's isolation dissolves. The building is revealed not as a solitary ruin along a quiet valley, but as a point on an active line of movement, and one deliberately intended for everyday use: through MOVE ON, the Valle Olona route has been treated as a laboratory for light mobility. This carries particular significance for a project set within a shrinking town, since its users need not be drawn from the resident population alone; the route supplies a second, continually renewed constituency ,commuters and visitors already passing by, for whom the site might offer a reason to pause or rest.

LEGENDA

Inquadramento

- Confine comunale
- Perimetro centri storici
- AT — Perimetro Ambiti di trasformazione
- PA - PCC — Perimetro PA o PCC

Sistema dei servizi

- a — Impianti tecnologici esistenti
- sigla — Servizi esistenti su territorio comunale
- vt — Aree a verde pubblico esistenti
- sp — Servizi di progetto
- vp — Aree a verde di progetto
- Arig — Ambiti della rigenerazione pubblica

gc - Aree per servizi di utilità generale e servizi amministrativi
if - Aree e servizi per l'infanzia o l'istruzione
ss - Aree e servizi sanitari, assistenziali e sociali
rt - Aree e servizi di scala sovraccomunale
ca - Aree e servizi per il culto e le attività connesse
gs - Aree e servizi per il gioco e lo sport
vt - Aree e servizi a verde e per il tempo libero
p - Aree e servizi per la sosta e la circolazione dei veicoli
sp - Servizi pubblici di progetto
vp - Aree a verde pubblico di progetto
cim - Cimitero

Sistema infrastrutturale e della mobilità dolce

- Nuovi tracciati o elementi viari
- Percorsi ciclopedonali esistenti
- Percorsi ciclopedonali in progetto
- Strade urbane e ciclabili (E-bis)

Elementi della Rete Ecologica Comunale

- core area secondo livello (PTCP)
- corridoi ecologici (corridoi e connessione ecologica) (PTCP)
- fascia tampone di primo livello (PTCP)
- PLIS Rile - Tenore - Olona (RTO)
- Monumento naturale "Gonfolite e forre dell'Olona" (DGR 8/8053 del 19/9/2008)
- direttrice principale della connessione ambientale sovracomunale - PLIS RTO
- direttrici secondarie della connessione ambientale comunale
- direttrici di connessione ambientale locale tra sistema urbano e sistema ambientale
- Direttrice del corridoio fluviale dell'Olona
- Area di frangia urbana
- Altre aree agricole

Principali elementi della rete verde locale

- Aree a verde pubblico esistenti
- Aree a verde di progetto
- Strade interponderali o percorsi esistenti per la fruizione ambientale
- tracciati di interesse paesaggistico

former cartiera cespi

Fig 07. cycle network in Castiglione Olona, showing existing paths (light blue) and planned extensions (red)

Comune di Castiglione Olona
Provincia di Varese

PGT

Piano dei Servizi

B.1.0

Disciplina del PdS

Scala 1:5.000

modificata a seguito di controdeduzione alle osservazioni e ai pareri pervenuti



Professionista incaricato
architetto Fabrizio Ottolini

gennaio 2024

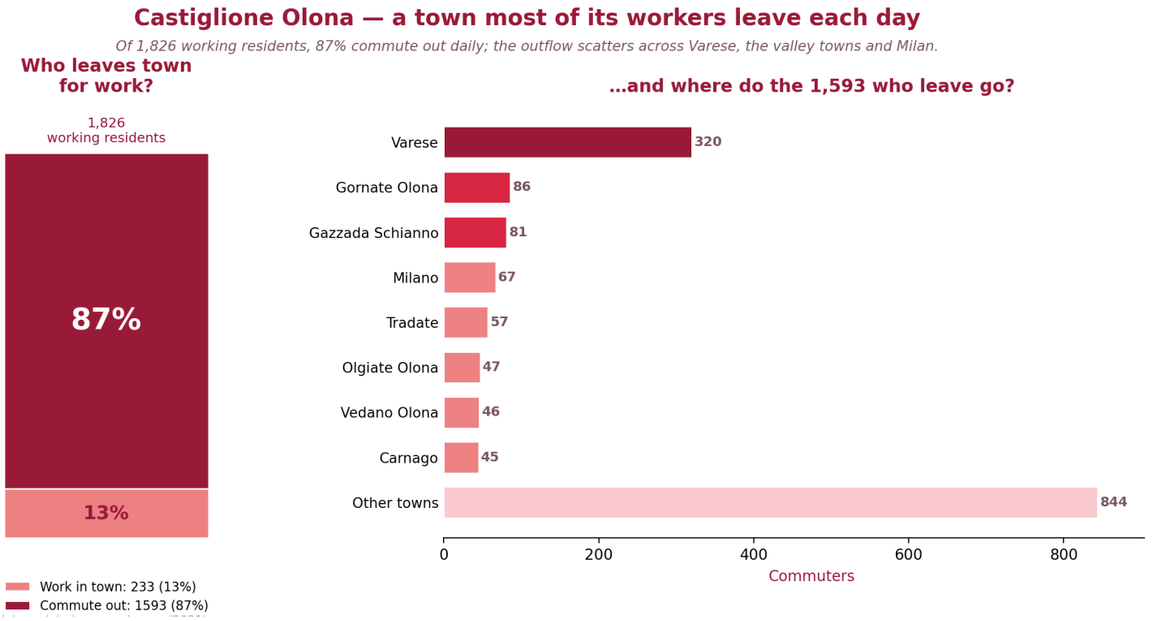


Fig 08. Daily work commuting of employed residents of Castiglione Olona, 2021. Author's elaboration based on ISTAT, Matrice del pendolarismo per lavoro (2021)

The commuting data reveals the extent to which Castiglione Olona functions as a place of residence rather than of work. Of its 1,826 employed residents, only 13% are employed within the municipality itself, while the remaining 87% travel beyond its boundaries each working day. Nor is this outward movement directed toward a single dominant centre: although Varese draws the largest share, the majority of commuters disperse across a wide constellation of destinations, the neighbouring valley towns, more distant Milan, and a long tail of smaller municipalities that together account for the greatest number of all. The town, in effect, empties of its working population each morning and refills each evening, retaining little of its residents' daily economic life within its own fabric. What emerges is the profile of a community that has become largely residential, a place people return to rather than one in which they work, produce, or spend their working hours.

As a conclusion, the analyses assembled in this chapter describe a single, coherent condition. The demographic evidence shows a community that is contracting and, above all, aging: its older residents are now its largest and most enduring group, and with them remains the memory and manual skill of the valley's productive past.

The economic evidence shows that this productive past has itself receded ,the town's manufacturing base, once the centre of its working life, declined by almost a quarter in a single decade without a comparable activity rising to replace it.

The commuting evidence completes the picture: of the town's employed residents, some 87% now work beyond its boundaries, so that Castiglione Olona has become largely a place of residence, emptying of its working life each day and retaining little of it within its own fabric.

And the territorial evidence adds a final, more hopeful dimension, the site sits directly upon an existing regional cycle route which, as its missing links are completed, will draw a continuous movement of people the length of the valley, from Milan toward Switzerland, past the very door of the former factory.

Read as a whole, these are not four separate findings but four faces of one situation. The town has lost its productive identity, yet still holds the generation that carried it ,a generation whose knowledge and experience risk fading unused. Its working life has drained outward, leaving little reason for its younger residents to remain and build something of their own within it. And at the same time, because of the bike lane, the site is on the verge of becoming far more open and easily reached than before. A place, in other words, that is losing something it once had, that still holds the means to recover it, and that is about to be given a new flow of life from beyond its edges.

3.3.1 design idea:

Before the new life of the building could be defined, a closer study of its fabric was required, and this study revealed that not all of its parts belonged to the same architectural logic: Certain volumes had been added gradually over time, without regard for the rhythm and character of the original structure, and sat awkwardly against the whole , interruptions in a building that had once possessed a clear and consistent order. The historical drawing and maps held by the Comune confirmed this reading: for several of these later additions, no original drawings existed, meaning they could not be traced to the building's documented past and formed no part of its referenceable history.

The decision was therefore made to remove these incoherent parts. This was not an act of erasure but of clarification: by taking away what had added without intention, the core spaces of the building (those that carry its character and its memory) could be recovered and allowed to breathe, and the intervention itself kept clear and uncrowded, grounded only in what the historical record could support. What remained, then, was not a ruin to be filled indiscriminately, but a coherent structure whose original spaces were ready to receive a new purpose.

Into these recovered spaces the project introduces a set of functions: a repair hall at its heart, a coworking space, a café and restaurant beside the river, a small museum, a garden, and a cycle rest-and-repair point along the route. These are not chosen

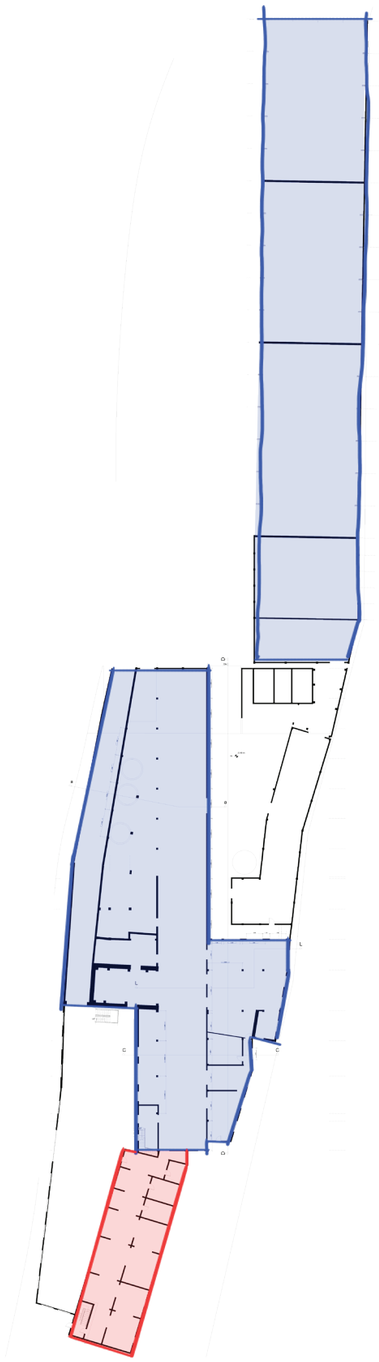
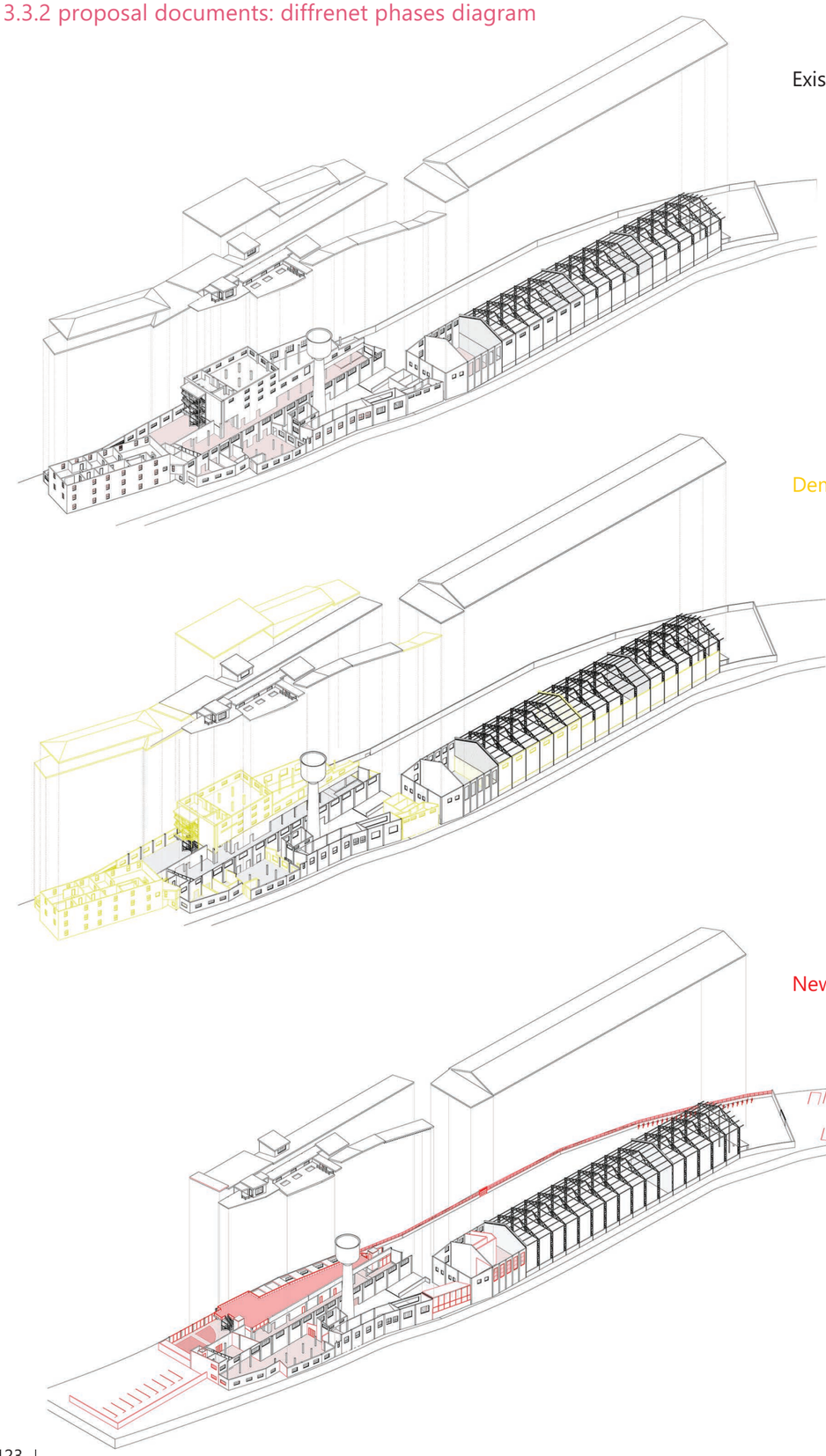


Fig 09. the rythem of the building along the river

arbitrarily, nor for variety's sake; each answers, directly, a condition the analysis brought to light. The repair hall stands at the centre of the project, and responds to two findings at once: a community whose oldest generation still carries the manual knowledge of the valley's productive past, and a town that has lost the industry in which that knowledge once lived. It is conceived as a place where this knowledge is kept in use, where those who hold it work alongside younger people drawn to making and skill, so that what one generation knows passes, through practice, to the next. The coworking space answers a different condition, and a different need. The town loses most of its working residents to the daily journey outward, and offers those beginning their working lives little reason, and no proper place, to build them here; the coworking responds to those group of people who wants to grow their own ideas and bussinesses not with craft but with modern work style in a flexible, professional setting without leaving the valley. Around these two, the café and museum, the garden and the riverside setting, form the shared ground on which the building's life gathers ,the places where the generations, and the two kinds of work, come into contact rather than remaining apart. And because the site sits directly upon a regional cycle route that will soon carry a steady passage of people the length of the valley, the building is conceived to open toward them: to receive not only the town but those crossing through it, offering a reason to stop, to rest, and to take part. so this flow create a comunity that different generations socilizing together, preserve the history while feel belonging to this place

3.3.2 proposal documents: diffrenet phases diagram



Existing Phase

Demolished Phase

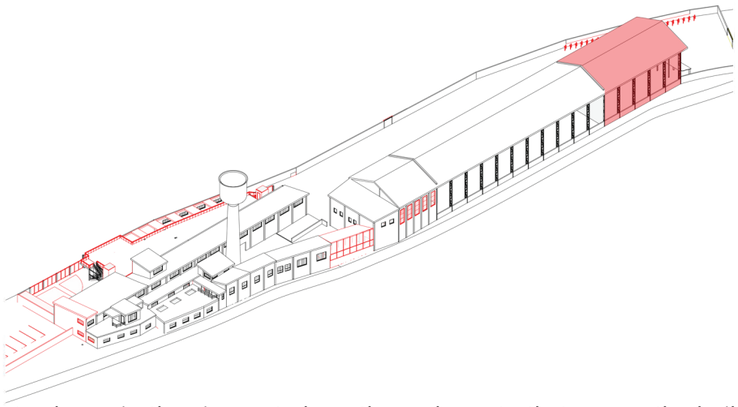
New Construction Phase

The top image documents the existing condition of the complex.

The second image, corresponding to the demolition phase, isolates the portions of the building that are removed from the project: volumes that depart from the constructive logic and rhythm of the original fabric, or for which no sufficient historical documentation survives to support their retention as reference elements. their removal lightens the overall mass of the complex, allowing the character of the historic structure to emerge rather than remaining obscured behind a sequence of disparate volumes crowded together within the narrow valley.

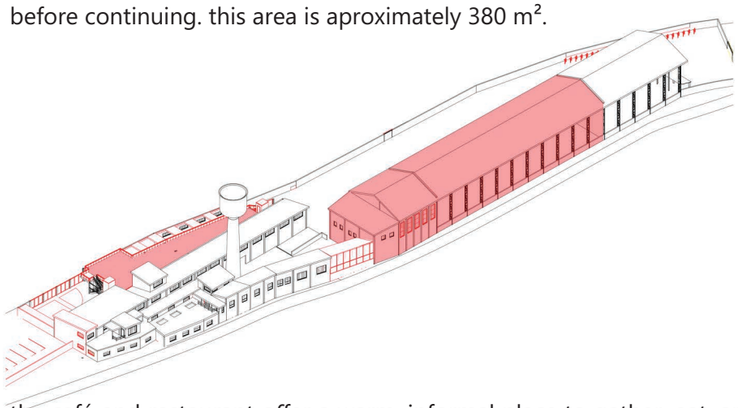
The final image shows the building following the new construction phase, once the intervention has been completed. after the interventions, of the roughly 7,872 m^2 of the site (land area), **approximately 3,367 m^2 remains covered by roofed volumes, while the remaining area is left open and unroofed.** two parking areas are introduced, one at the northern end of the complex and one at the southern end, together accommodating around 20 cars over a combined surface of approximately 800 m^2.

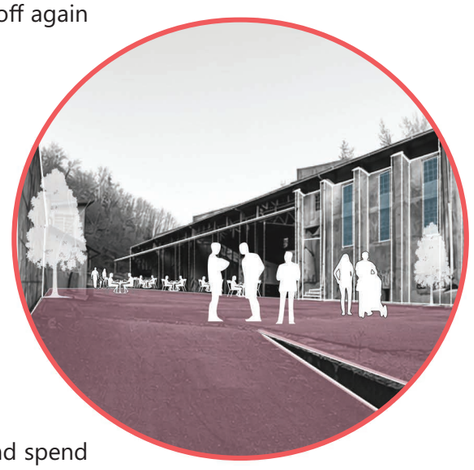
3.3.3 proposal documents: proposed function and surfaces



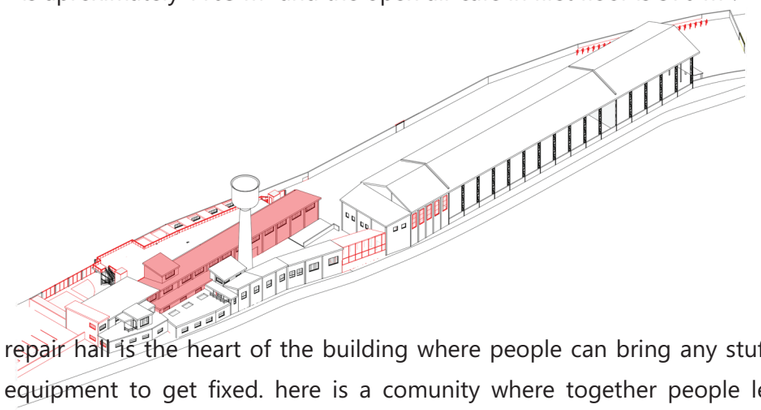


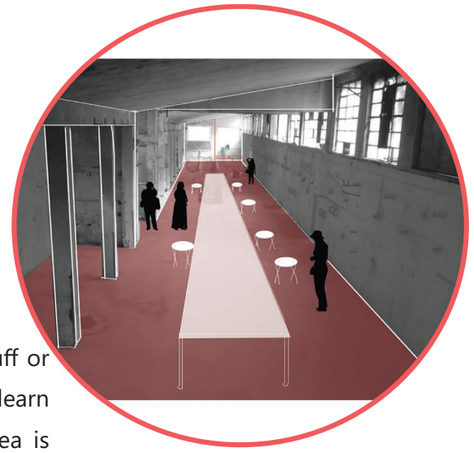
As shown in the view ,set along the cycle route that passes the building, the bicycle repair point gives those travelling the valley a place to stop and make a small repair, rest, share a moment with fellow travellers, and to set off again before continuing. this area is aproximately 380 m².



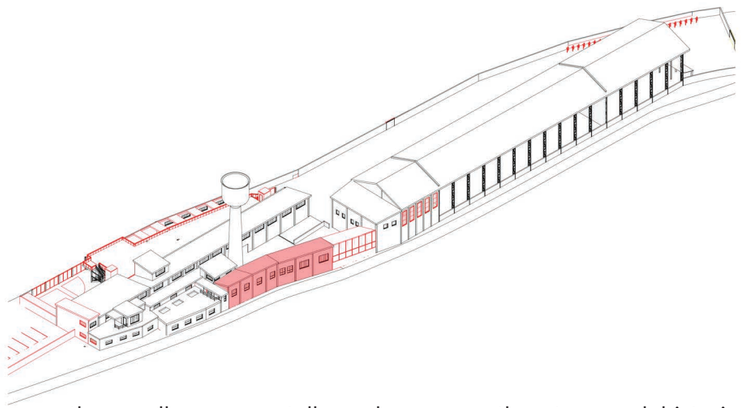


the café and restaurant offer a warm, informal place to gather, eat, and spend time by the water. Beyond daily use, the space is designed to host cultural events, becoming a small stage for the life of the community. the roofed area is aproximately 1165 m² and the open air cafe in first floor is 370 m².



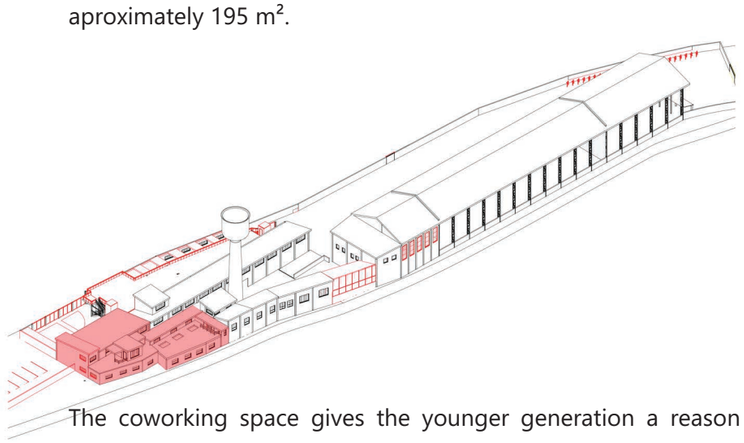


repair hall is the heart of the building where people can bring any stuff or equipment to get fixed. here is a comunity where together people learn how to fix and repair things while socilizing and having fun. this area is aproximately 725m².



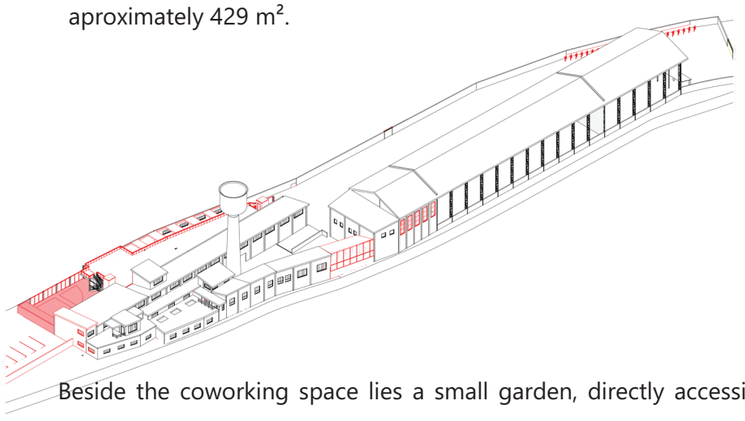


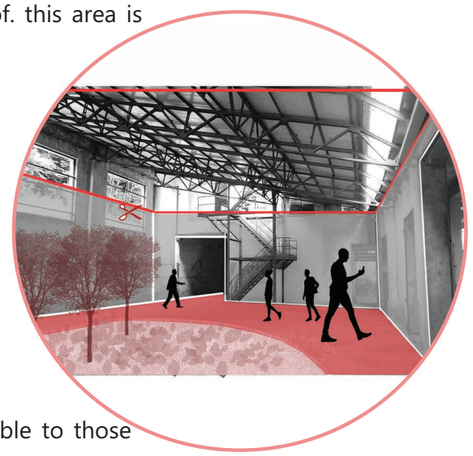
the small museum tells and preserve the story and historical memory of the former Cartiera Crespi , its origins, its working life, and its challanges that cause transformation into what the building has become. this area is aproximately 195 m².





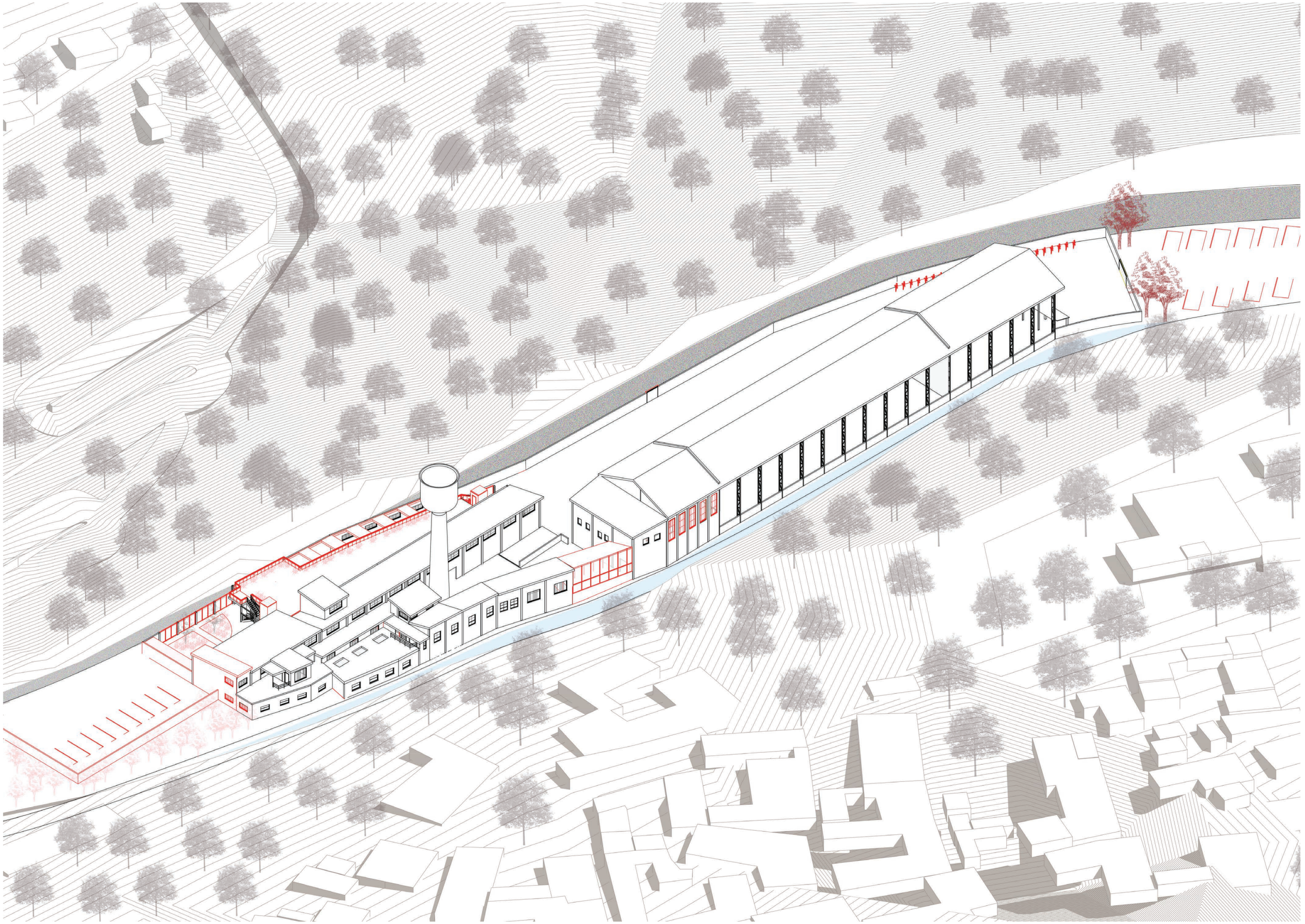
The coworking space gives the younger generation a reason to remain in the valley rather than carry their working lives elsewhere. Here those with an idea or a business of their own can grow it in a proper, professional setting , working locally in an historical environment they are proud of. this area is aproximately 429 m².



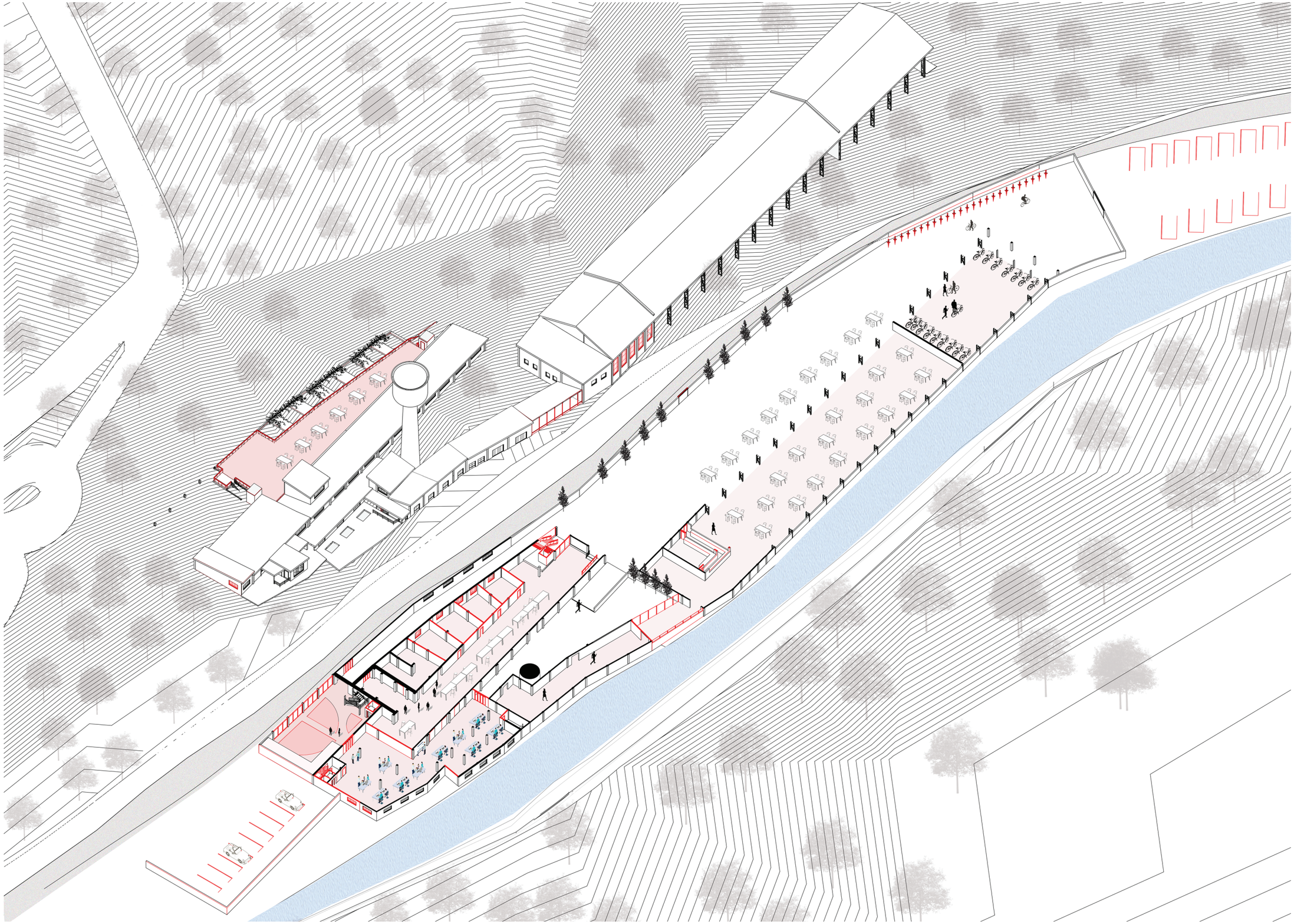


Beside the coworking space lies a small garden, directly accessible to those working within it. A sheltered seating area at its edge offers a place to pause outdoors ,taking fresh air and a moment's quiet without leaving work behind. this area is aproximately 240 m².

3.3.4 proposal documents: axonometric view



3.3.5 proposal documents: exploaded diagram





repair hall

3.3.6 proposal documents: interior/ exterior view



garden view



yard(hosting as social event)/ night view



repair bike space (next to the repair cafe/ restaurant)



yard (hosting as restaurant- repair cafe)/ day view

3.4 Conclusion

As a conclusion, the study of industrialisation and its decline provided the starting point from which the story of the Valle Olona could be understood , how the valley's productive identity was formed around its mills and manufactories, and how with the passing of that industry, a wealth of buildings was left abandoned along its course. Through this reading, and through the emergence of industrial archaeology as a field, it became clear that such structures are not unworthy but heritage resources of architectural, technological, and cultural value, which should to be protected for future generations. The former Cartiera Crespi stands as one example of these abandoned sites , significant in its history yet, despite its evident value, left without a future. In this way, the strategy of adaptive reuse is understood here as a means of returning such sites to active life, reintegrating them into the fabric of the community rather than allowing them to decline.

Research into the wider context showed how the decline of the valley's industry was accompanied by social and demographic shift. The population of Castiglione Olona has been ageing over recent decades, its productive base has substantially eroded, and the greater part of its working residents now leaves the town each day. Understanding these conditions before proposing any intervention was essential, since they explain why a site of such heritage importance had remained unplanned, and what a reuse of it would truly have to address.

The result of the analysis provided information about the ageing of the community, the loss of its productive identity, the daily outward movement of its working population, and the presence of a regional cycle route passing directly beside the site (all of which highlighted important aspects to consider in the reuse project) and within whose context the design was developed. From this understanding, the building was proposed to become a place where the productive life of the valley might return in a contemporary form: a repair hall in which the manual knowledge and skill of the older generation is passed to the young, a coworking space offering those group who want to begine their working lives a reason to remain, and, around these, a café, a museum, a garden, and a point of rest along the cycle route, through which the building opens itself to the town and to those crossing the valley. In this way, the project was developed on the basis of site-specific needs, analysis, and the character of the place itself.

The project has respected the authenticity and original components of the former mill. The intervention is distinguishable from the original structure while preserving its historical integrity; parts added over time without coherence were removed to recover the character of the building's core spaces and the constraints of a flood-prone site were answered through a light and reversible approach. The project aimed to demonstrate the potential of industrial heritage as a valuable resource, and to give a slowly emptying town a reason to gather , connecting generations that rarely meet and returning a productive purpose to the valley. By putting the proposal in the real conditions of its place rather than in a purely theoretical framework, the approach focuses on practical engagement that means developing a project that envisions the site's transformation while preserving its collective memory and repurposing it for future generations.

Websites

1. Comune di Castiglione Olona. Schede degli Ambiti di Rigenerazione. Variante generale al Piano di Governo del Territorio (PGT), ARIG 1 – Ex Cartiera Crespi. 2023 : https://www.hlservizicloud.it/pgt/sites/default/files/users/012046/PGT/VARIANTE_2023/ADOZIONE/PIANO_DELLE_REGOLE/PDR_1.1%20schede%20ARIG_LUGLIO%202023.pdf
2. cycling rout programm of varese : https://www.provincia.va.it/news/ciclopedonale-della-valle-olona
3. https://www.tuttitalia.it/lombardia/41-castiglione-olona/statistiche/
4. https://www.istat.it/
5. https://www.comune.castiglione-olona.va.it/

Figures and Maps

- map 01-02-03: Comune di Castiglione Olona, Ufficio Tecnico. Technical and historical documentation on the former Cartiera Crespi (mappale 654, Via Diaz): cadastral maps, building files, historical plans. Archivio dell'Ufficio Tecnico, Comune di Castiglione Olona. Personal correspondence, April 2026
- Figure n.01-02: https://www.tuttitalia.it/lombardia/41-castiglione-olona/statistiche/popolazione-eta-sesso-stato-civile-2025/
- Figure n.03 : https://www.tuttitalia.it/lombardia/41-castiglione-olona/statistiche/indici-demografici-struttura-popolazione/
- Figure n.04-05 : author's elaboration on Comune di Castiglione Olona, PGT (Quadro conoscitivo); ISTAT, Censimento Industria e Servizi 2001–2011.
- Figure n.06 : Istituto Nazionale di Statistica (ISTAT). Matrice del pendolarismo per lavoro. Rilevazione al 31 dicembre 2021. Roma: ISTAT, 2021: https://www.istat.it/notizia/matrice-di-pendolarismo-per-lavoro/
- Figure n.07 : di Varese. "Ciclopedonale della Valle Olona: verso il completamento del percorso ciclopedonale di interesse regionale n. 16." 11 March 2025: https://www.provincia.va.it/news/ciclopedonale-della-valle-olona
- Figure n.08 : Comune di Castiglione Olona: Piano di Governo del Territorio (PGT) , Piano dei Servizi. Tavola B.1.0, Disciplina del Piano dei Servizi (scala 1:5.000). Variante Generale al PGT, Approvazione. Castiglione Olona(Comune di Castiglione Olona, gennaio 2024): https://www.hlservizicloud.it/pgt/content/012046.Provincia
- Figure n.09 : author's creation diagram

Legend

1. car parking
2. bike parking
3. bike-repair station
4. repair cafe/ restaurnt
5. kitchen
6. central court yard
7. museum of former Cartiera Crespi
8. co-working space
9. repair hall
10. repair equipment storage
11. workshop/classes
12. garden

0 5 10 15 20 25m

New Construction Phase

Ground Floor plan

Parking Entrance

Main Entrance

Entrance

Parking Entrance

Street

Olona river

0.00 m

-0.50 m

Demolished Phase

Ground Floor plan

Politecnico di Torino

reusing of industrial heritage" a Proposal for Cartiera Crespi, a Peripheral Productive Hall"

(Design Intervention Proposal)

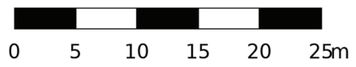
Supervisors:
Prof. Manuela Mattone
Prof. Elena Vigliocco

Student:
Saba Khoshtinatnikkhoy
310603

A.Y: 2025/ 2026

New Construction Phase

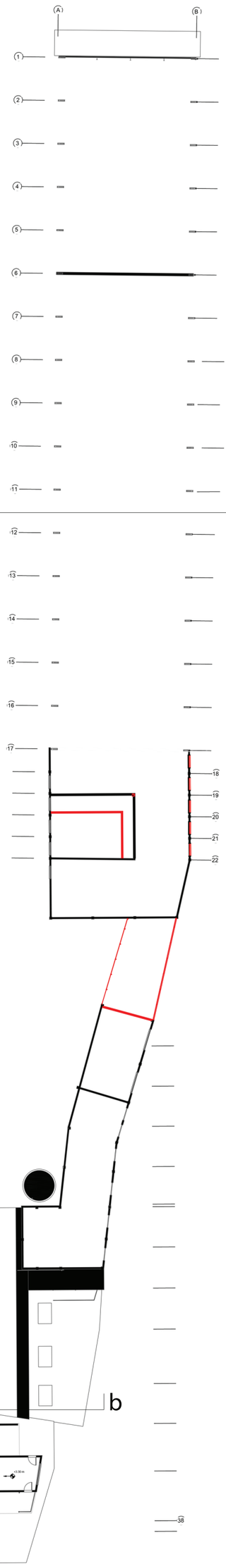
First Floor plan

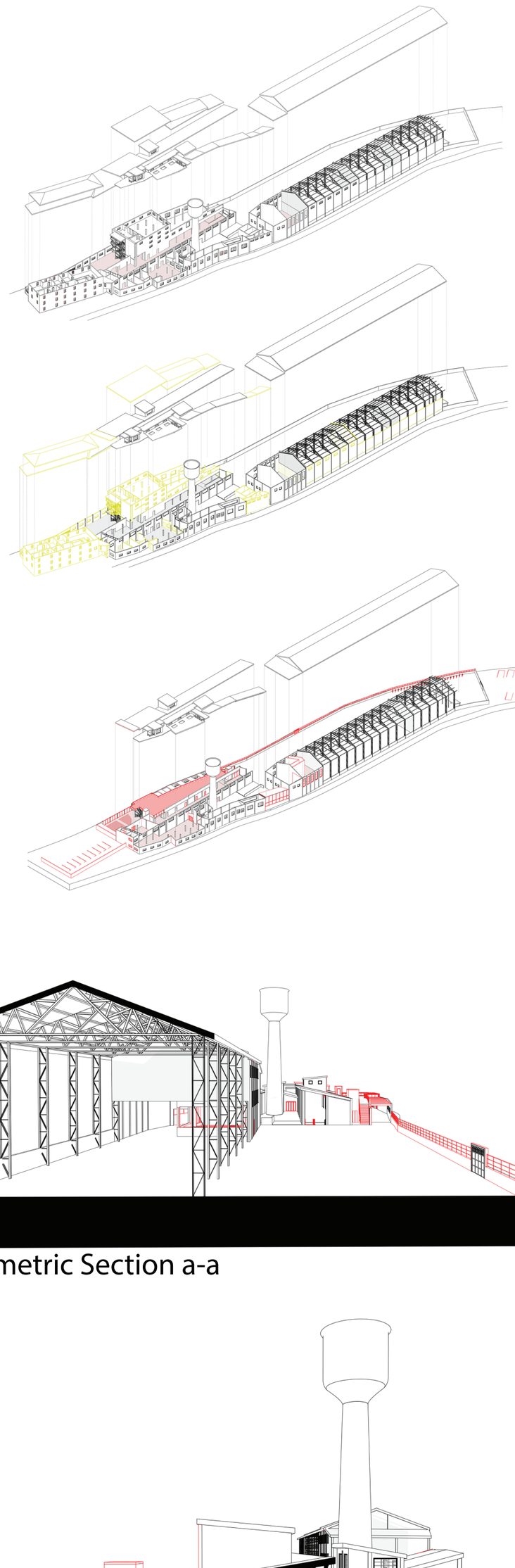


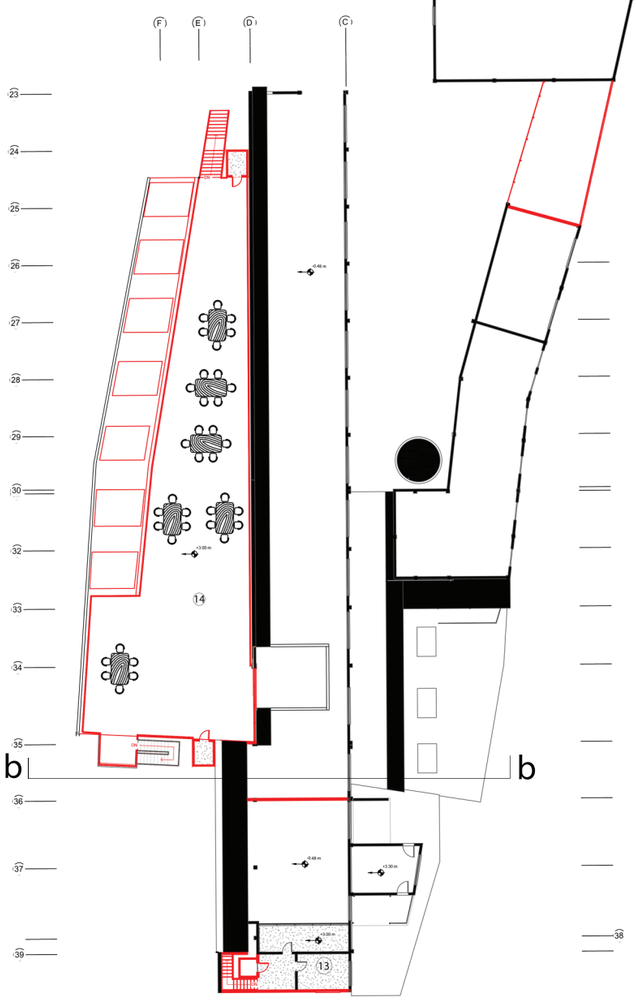
Legend

13 manager office

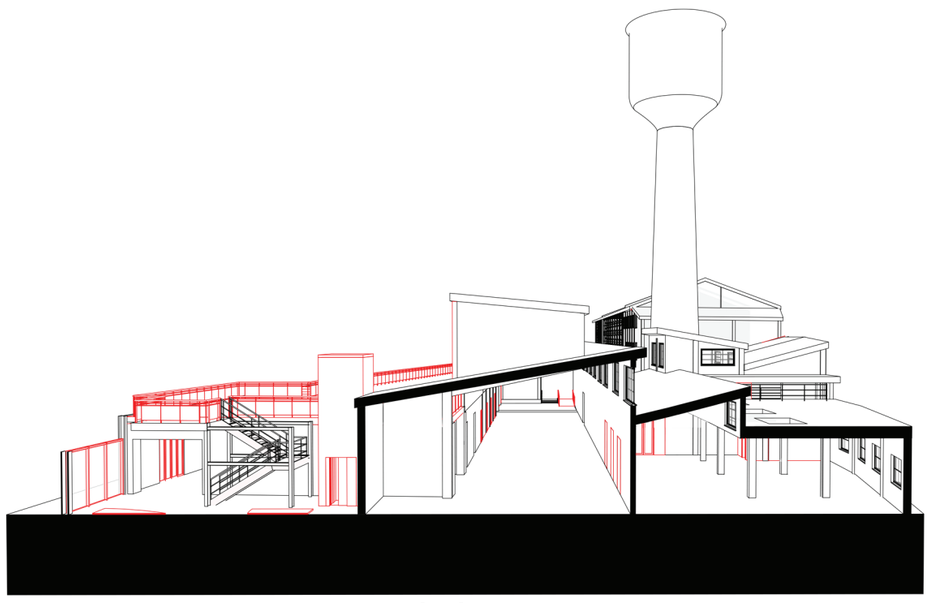
14 roof cafe







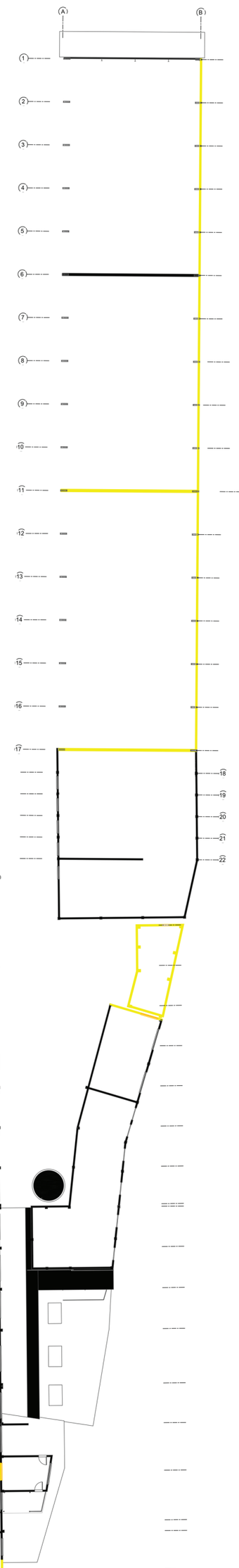
Axonometric Section a-a



Axonometric Section b-b

Demolished Phase

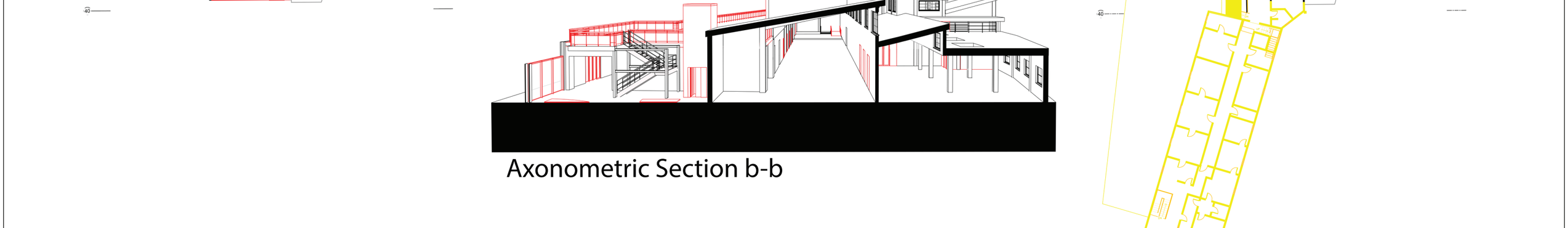
First Floor plan





West Elevation

East Elevation



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