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REFERENCE STANDARD

Recommendations for the management,
conservation and sustainable development
of the « **FORTIFICATIONS OF VAUBAN** »



Organisation
des Nations Unies
pour l'éducation,
la science et la culture



Fortifications de Vauban
inscrites sur la Liste du
patrimoine mondial en 2008

Réseau
des sites majeurs
Vauban

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A REFERENCE STANDARD WHY AND FOR WHOM?

The fortifications of Vauban were inscribed on the World Heritage List in 2008. This serial property combines the twelve sites that are most representative of the various facets of Vauban's work (160 fortified sites in total) in terms of geographical situation, type of structure and how the military engineer took advantage of site conditions to adapt existing fortresses and build new fortifications to improve the defence of France's borders. In 2017, a procedure was begun to extend the inscribed property to make it more representative overall.

The components of the serial property are interdependent; understanding the added value of each one and how they relate to one another is the key to understanding the value of the property as a whole. The attributes of the property and of each component justifying its outstanding universal value are briefly described in the statement of outstanding universal value and in the management plan.

The purpose of the 'Fortifications of Vauban' reference standard is to explain these characteristics and to facilitate an understanding of the coherence of the components, which needs to be preserved. These insights help to identify better the issues involved in the preservation and development of the twelve major Vauban sites. While the site managers and the French State have committed to maintaining them in the state of conservation, authenticity and integrity that justified their listing, the inevitable changes brought by the twenty-first century must also be managed consistently across the serial property without compromising its outstanding universal value.

The modes of governance of the major Vauban sites can vary widely and very many different people and organisations are involved in their preservation and restoration. Before they take any action, they need to understand the representative characteristics of their site within the serial property as a

whole, along with its heritage value, in order to ensure the attributes and representativeness of Vauban's work in all its diversity are preserved.

The reference standard is designed as a tool to assist site managers, their partners and State services with the definition of work at and around the sites, in accordance with the 'preservation through development' principle. It is supported by the Ministry of Culture/ Drac Bourgogne-Franche-Comté*, with the participation of the Ministry for the Ecological and Inclusive Transition and the DREAL Bourgogne-Franche-Comté**.

Although this reference standard is not in itself enforceable, the intention is to incorporate it into the management plan.

* DRAC BOURGOGNE-FRANCHE-COMTÉ:
REGIONAL BRANCH OF THE MINISTRY OF CULTURE

** DREAL BOURGOGNE-FRANCHE-COMTÉ:
REGIONAL BRANCH OF THE MINISTRY FOR
THE ECOLOGICAL AND INCLUSIVE TRANSITION

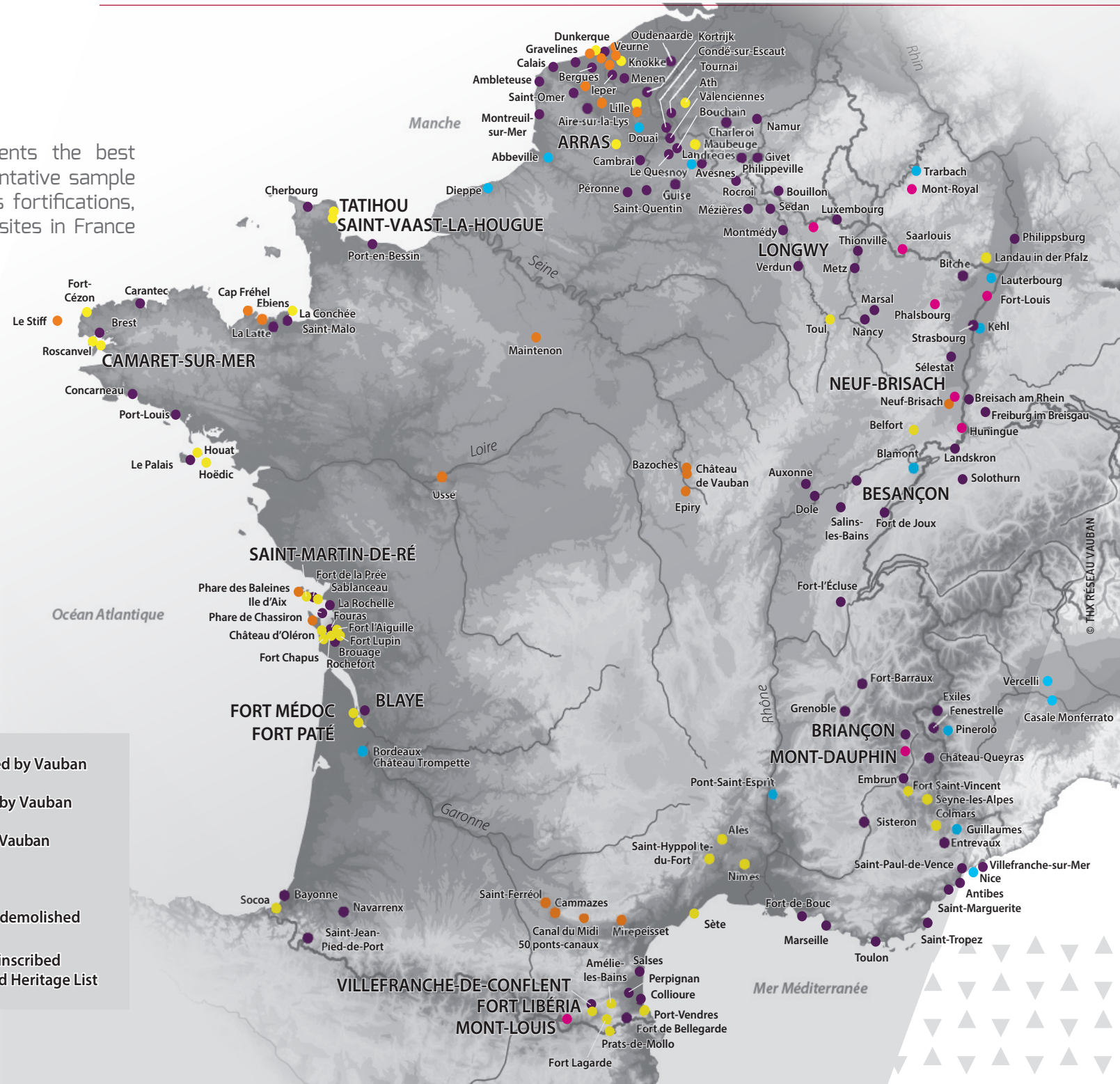
THE TWELVE INSCRIBED SITES AND THE THREE CANDIDATE SITES FOR EXTENSION OF THE INSCRIBED PROPERTY

-  VAUBAN
FORTIFICATIONS
INSCRIBED ON THE
WORLD HERITAGE LIST
-  CANDIDATE VAUBAN
FORTIFICATIONS FOR
EXTENSION OF THE
INSCRIBED PROPERTY



A / Serial property

The serial property represents the best preserved and most representative sample of all the facets of Vauban's fortifications, which consist of nearly 160 sites in France and Europe.



- Fortification improved by Vauban
 - Fortification created by Vauban
 - New town created by Vauban
 - Civil structures
 - Fortification entirely demolished
- BLAYE** Vauban fortification inscribed on the UNESCO World Heritage List

EXTRACT FROM THE STATEMENT OF OUTSTANDING UNIVERSAL VALUE

“The work of Vauban constitutes a major contribution to universal military architecture. It crystallises earlier strategic theories into a rational system of fortifications based on a concrete relationship to territory. It bears witness to the evolution of European fortification in the 17th century and produced models used all over the world up to the mid-19th century, thereby illustrating a significant period of history. (...)”

As a serial property, it has a number of characteristics that are evidence of its universality:

- The choice of site of the fortifications, giving control over channels of communication all over the kingdom of Louis XIV. Without being contiguous, the sites punctuate France's land and sea borders, functioning as a chain of strongholds able to support one another.
- The inscribed property bears witness to the scale and extent of Vauban's work. In the context of the 17th century, the 160 fortifications planned and created by Vauban constitute an unparalleled and utterly exceptional whole.

➤ The diversity of Vauban's genius was due to the fact that he focused primarily on adaptation to the terrain and the surrounding topography. He consciously designed his projects to suit the site conditions, where necessary adapting them to pre-existing fortifications.

➤ The pragmatism of his choice of building materials, the scale and organisation of multiple construction sites, and their completion in often very short time scales, bear witness to the technical value of this work.

Today all of the components are, generally speaking, in the condition Vauban intended. The land they defended has not been obscured.

B / Components of the serial property

The following attributes are the key to understanding the contribution of each component to the serial property's outstanding universal value:

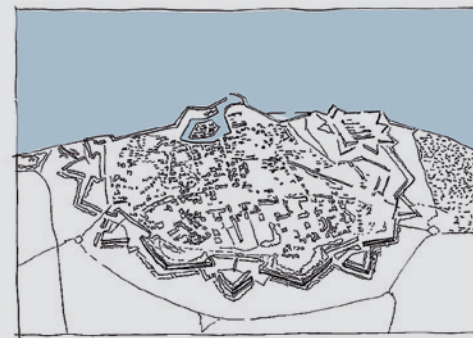
- Each site plays a role in the defence of a strategic region and protects a vulnerable point for France (confluence of valleys, mountain pass, plain, waterway).
- This protection is often based on structures providing mutual support: either within a single component (Villefranche, Blaye/Cussac, Briançon, etc.) or on a larger scale (the Vauban Tower at Camaret is, for example, a link in the chain of the defence system for the Goulet de Brest).
- The fortifications of Vauban are each representative of a type of defence used by Vauban to suit a geomorphological position, as shown below (illustration 3).
- They illustrate the evolution of defence strategy in Vauban's work, putting multiple obstacles in front of the main work of a fortification to delay an assailant's progress, depending on the configuration of the site. The Vauban fortified ensembles would subsequently be codified in three systems (illustration 4).
- They represent either the creation from scratch of a new fortification, or an adaptation of an existing fortress.

ILLUSTRATION 3

TYPES OF VAUBAN FORTIFICATIONS BASED ON THE DIFFERENT GEOGRAPHICAL BOUNDARIES TO BE DEFENDED

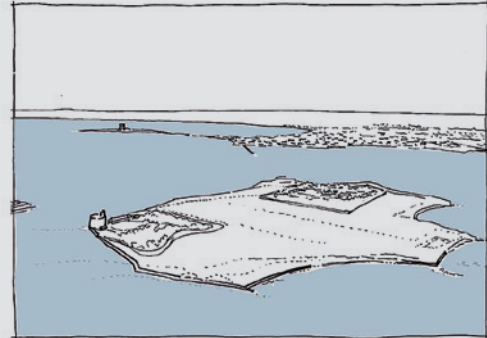
SEA FORTIFICATION SITES

Defence of an island



SAINT-MARTIN-DE-RÉ

Protection of an anchorage



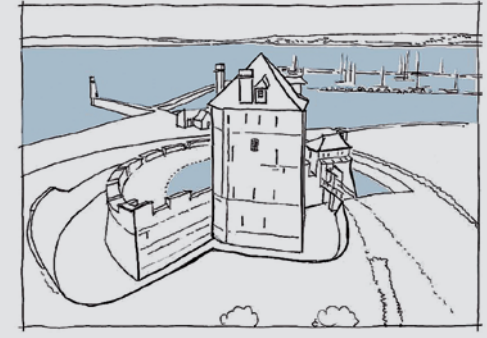
SAINT-VAAST-LA-HOUGUE

Estuary lock-out



BLAYE / CUSSAC-FORT-MÉDOC

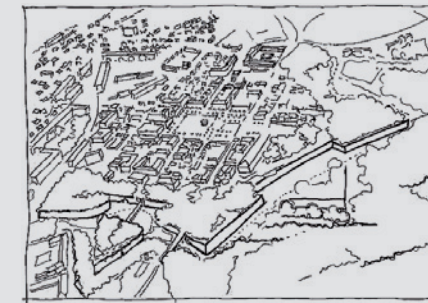
Defence of a river channel



CAMARET-SUR-MER

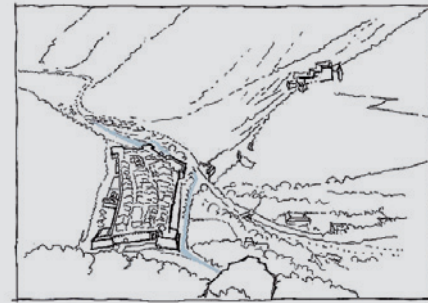
MOUNTAIN FORTIFICATION SITES

Defence of a promontory



LONGWY

Control of a valley



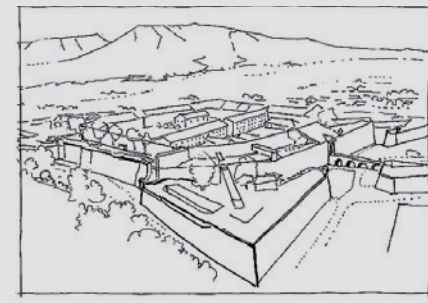
VILLEFRANCHE-DE-CONFLENT



MONT-DAUPHIN



BRIANÇON



MONT-LOUIS

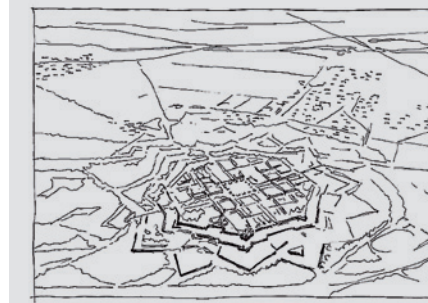
Defence of a meander



BESANÇON

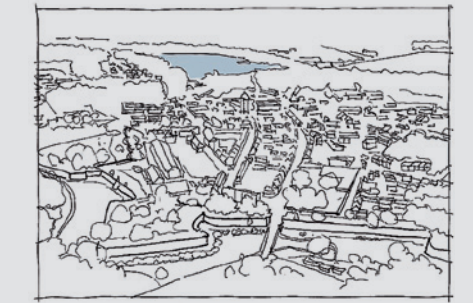
PLAIN FORTIFICATION SITES

New fortification on a plain

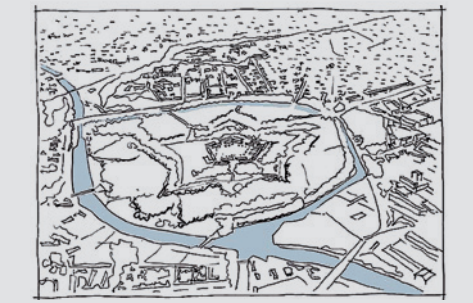


NEUF-BRISACH

Defence of a flood zone

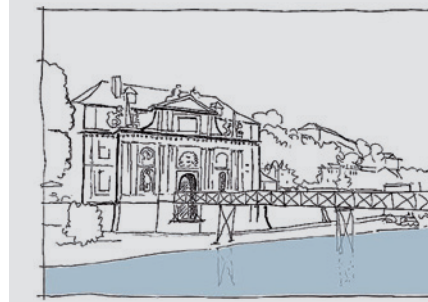


LE QUESNOY*



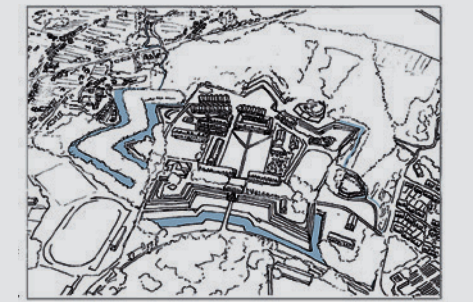
LILLE*

Bridge guard control



BREISACH AM RHEIN*

Defence of a plain



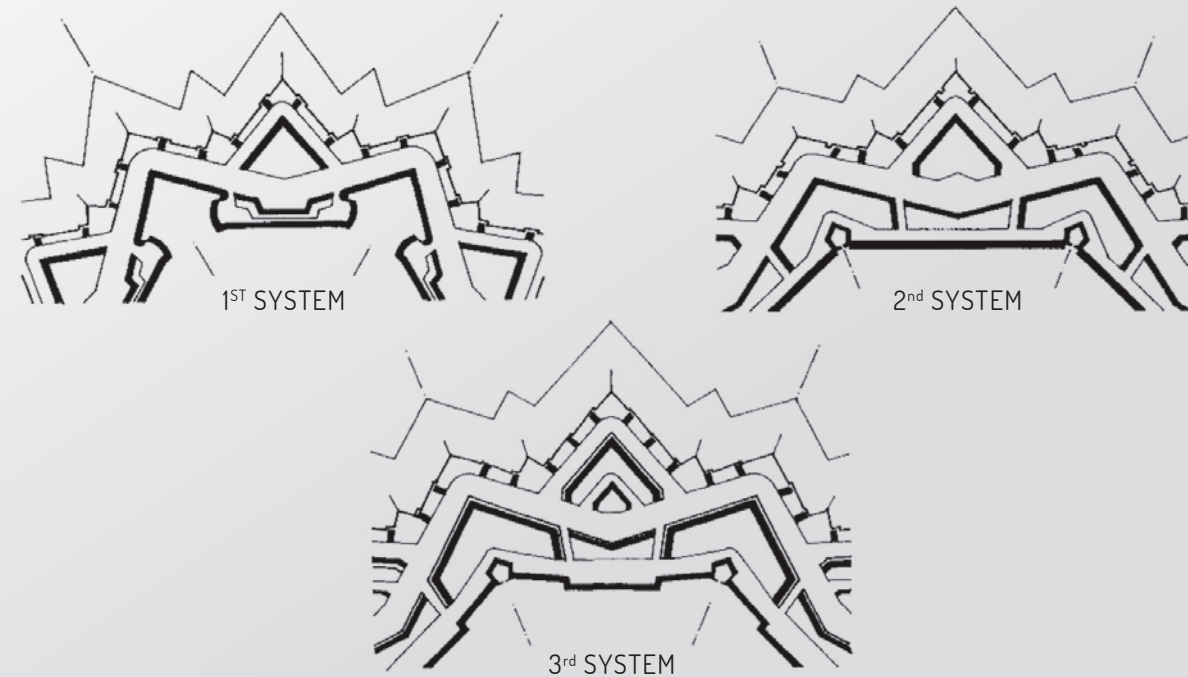
ARRAS

* CANDIDATE FORTIFICATIONS FOR EXTENSION OF THE INSCRIBED PROPERTY

These structures – citadels, towers, isolated forts, new towns, town walls – can also be categorised according to the different systems of fortification developed by Vauban to delay as long as possible the moment when the assailant would reach the secure enclosure (main wall of the defence), hence the use of multiple outworks. It should, however, be pointed out that the concept of ‘systems’ was alien to Vauban, who considered each stronghold to be unique, an expression of its role and its adaptation to the terrain. It was his successors who grouped his fortresses into three main systems, though in truth there are as many systems as there were fortresses built.

The Vauban fortified ensembles belong to the ‘bastioned’ fortification, which he developed to a high degree of effectiveness.

ILLUSTRATION 4 THE THREE VAUBAN SYSTEMS CODIFIED IN THE 18TH CENTURY



Bernard Forest de Bélidor defines it thus:

“Fortification is the art of creating a stronghold such that every part of it leaves the enemy’s front and flank exposed and confronts the enemy with the width and depth of its ditches and the height and solidity of its ramparts, so that a small corps of troops can easily resist a large army.”

* Dictionnaire portatif de l’ingénieur, C.A. Jombert, 1755, pp. 134-135

The bastioned fortification is characterised by the geometry of its flanking (plan) and by defence in depth (profile).

The outline of the bastioned fortification illustrates geometrical concepts developed into a complete system and transposed into a physical framework. The plan of the surrounding wall is simply a geometrical arrangement, the elements of which are repeated. It is made up of bastions (which replaced the medieval tower) linked by curtain walls. The bastion can be defined as a pentagon figure with two faces, two flanks and a gorge, the salient angle of which points towards the landscape.

This geometric pattern is dictated by the flanking principle (illustration 5), which ensures that every point on the rampart wall is visible from somewhere else so that the ditch is fully protected by firing. Any guns firing obliquely over the ditches from the flank of the bastion can therefore fire in enfilade across the front of the next bastion, thus eliminating any blind angles. Flanking is the art of exposing and fighting the enemy from the side. Defilading of structures is the key to the bastioned system.

The bastioned fortification is also characterised by the depth of its enceinte. To effectively withstand artillery fire, it was no longer enough just to put up a single masonry wall, like during the Middle Ages. The rampart, consisting of an enormous mass of earth, possibly faced with stonework, was used. In addition to this there was also the ditch, the covertway and the glacis. Together these structures form the general profile of the bastion wall.

The basis for building these structures is the defilade principle (illustration 6). This is defined as the art of concealment, hiding the main body of the stronghold from the enemy’s sight. In addition to ‘burying’ the fortification using ditches, various outworks are placed in front of the main rampart. Staged fire always gives the defender a commanding position over the enemy. The defender can see without being seen.

Vauban fortifications are generally described as being ramparted, i.e. the earth removed from the ditch is piled up to create an obstacle. Generally in the form of bastions and curtains, “le corps de la place” is defined as the

main rampart of a stronghold. Vauban fortifications are also low-lying, i.e. buried in the ditch so that the defending guns can fire at a low angle on the glacis, a vast area reprofiled to be entirely covered by fire.

The high-level sites (Briançon, the citadel at Besançon, and Fort Liberia at Villefranche) are the exception to this rule, ostentatiously marking in the landscape the occupation of the land. Their high position offers control of movements in the valley, as per the military adage: “Whoever controls the high ground controls the low!”

ILLUSTRATION 5

DIAGRAM ILLUSTRATING THE FLANKING PRINCIPLE. THE BLIND CORNER IN FRONT OF THE MEDIEVAL TOWER (IN YELLOW); PERFECT FLANKING IN FRONT OF THE PENTAGONAL BASTION.

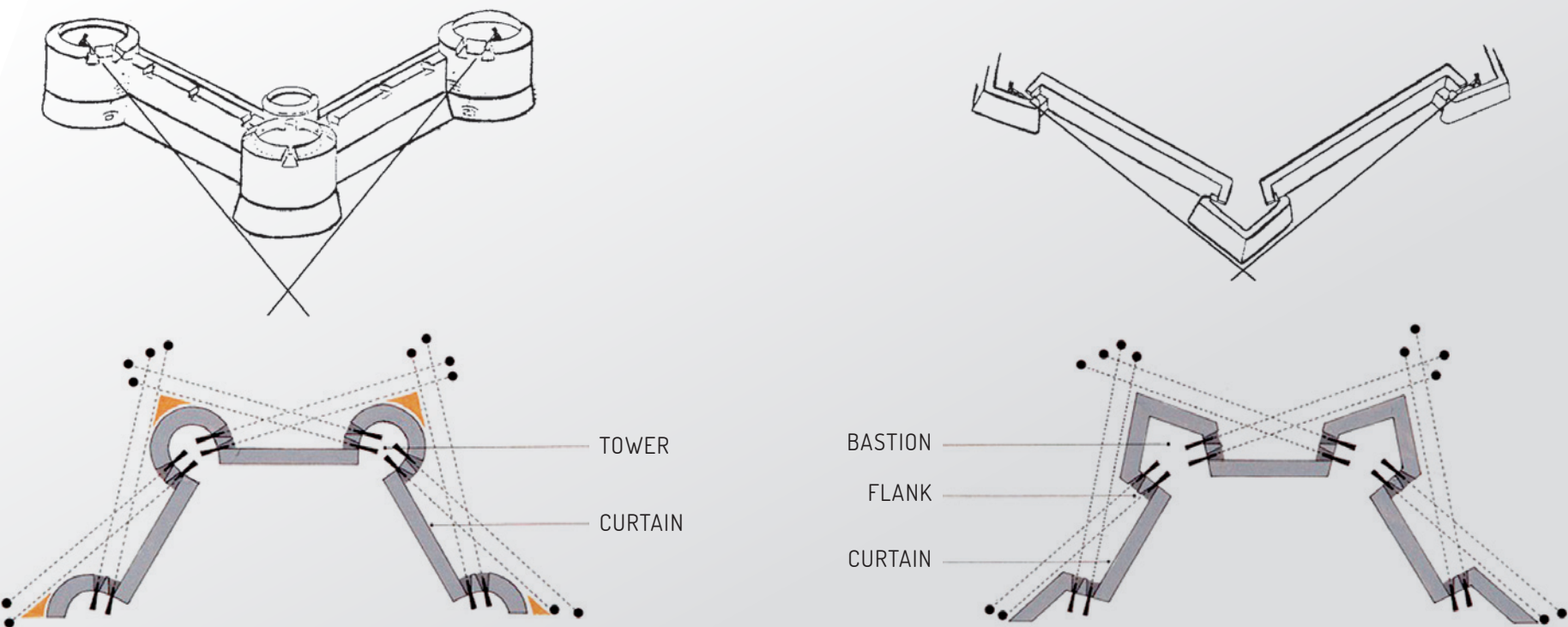
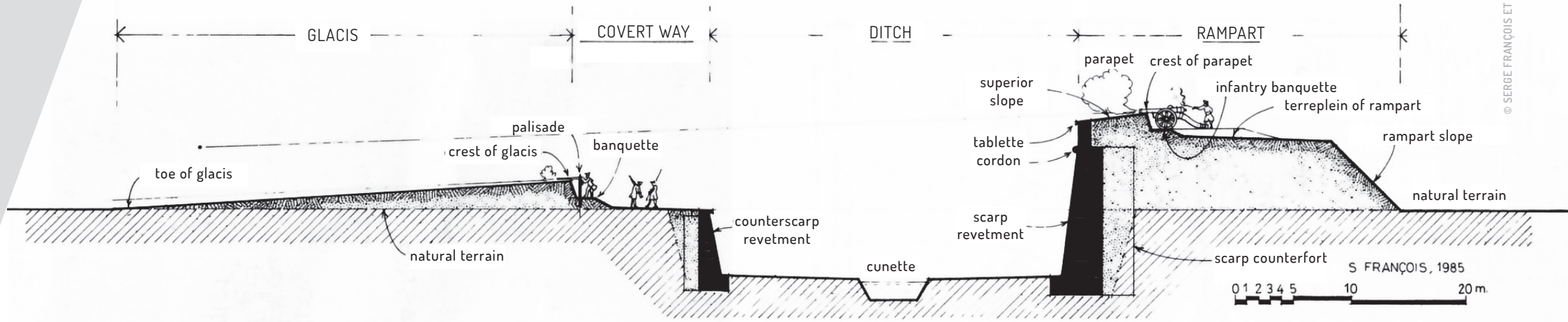


ILLUSTRATION 6

DEFILADE PRINCIPLE OF THE DEFENCE SYSTEM



SURVEY AND PRESERVATION CHALLENGES

To accompany their inscription on the World Heritage List, the major Vauban sites have developed a common cultural image and collective actions as an expression of their reciprocal and collective outstanding universal value (colour chart, signpost, commemorative plaque, etc.). The local cultural projects at the sites are complementary so that together they cover all the facets of Vauban's work: they explain what each component represents

within the serial property as a whole and they provide the guiding thread for future development.

The distinctive attributes of each component will guide choices about new uses. At the scale of the serial property, this will be reflected by different programmes compatible with the particular characteristics of each component.

A / Landscaping and architectural integrity

How do we preserve the integrity of the landscape in which a fortification is set, viewed from a distance or nearby?

MORPHOLOGY AND LANDSCAPE ENHANCEMENT

The landscape and architectural context in which each site of the serial property sits has not changed significantly since Vauban's time. The resulting morphology helps us to understand the system of defence, the lines of attack and bombardment, the defender's firing angles, and the remarkable adaptation to difficult terrain (optimisation of natural defences), both in the immediate vicinity of the site and within the landscape at a larger scale of up to around 20 km.

The potential enemy must be visible a long way away but unable to see the fortified site.

The landscaping and natural advantages of the sites fortified by Vauban form landscape units in dialogue with their geographical environment. They can often be seen from a distance (10 to 25 km), making them iconic, clearly identifiable features of the landscape that nowadays drive tourism. Monuments are sometimes visible from routes used on land (Besançon,

Briançon) and at sea (Saint-Vaast-la-Hougue, Camaret, Saint-Martin-de-Ré), but are often more difficult to see in the case of sites on plains. Their high profile within the landscape reflects the desire in former times to occupy the land in a rather ostentatious manner. These days it is an important attribute of a property.

The land being defended depended on the range of fire, but also on how far away arriving attackers could be seen. The eye can see up to 30 km away in some cases. The horizon may be a long distance away, or brought nearer by elements such as mountains, hills or cliffs nearby.

From the sites themselves, views outwards enable appreciation of the site's adaptation to the geography of the locality, and of the extent and diversity of the landscape, and enable visitors to understand the defence strategy and historical importance of the place. 'Buffer zones' include the property's immediate environment and provide extra protection for the property.

Developments can sometimes conflict with the site's historical prominence in the context to which it was adapted geographically and with the ability to understand the defence system's strategic axes of bombardment and attack.

CONSIDERATION OF ECOSYSTEMS

In an international, national or regional context, some sites are subject to nature protection: Natura 2000 sites, National Parks, Regional Nature Parks, Zones of Interest for Ecology, Flora and Fauna (ZNIEFF), wildlife corridors (Trames Vertes et Bleues), protections under the coastal law (loi Littoral), etc. Some sites form reservoirs of biodiversity within green corridors and contribute to the quality of life of the local population. Ramparts, moats and walls have often enabled a specific fauna and flora to develop suited to the particular living conditions that they offer.



PLANT COVER AND EARTHWORKS

Vegetation (deliberate planting, self-sown vegetation leading to afforestation) can obscure a fortified system when it masks views over important parts of that system. However, it can also be used as a new way of improving the space, providing comfort for today's non-military users and enriching biodiversity. The challenge is to control vegetation sufficiently to **make it easy to understand the fortified system** while respecting the new uses made of the sites.

Earthworks for defensive purposes are a fundamental part of fortifications. They have always required maintenance but this has gradually fallen by the wayside. Profiles have subsided or eroded and nowadays are often difficult to see.

Sometimes the roots of vegetation have preserved the levels of slopes by retaining the soil, which would otherwise tend to subside. But this soil retention can be difficult to discern under thick foliage.

FORTIFIED BUILT HERITAGE

The building materials used give Vauban's fortresses a subtle variety and play both an aesthetic and pragmatic role. Each of the 12 major sites has its own colour and its own materials hewn from the ground where it was built.

Vauban preferred to use the materials available on site: pink Conflent marble at Villefranche-de-Conflent, Guillestre marble at Mont-Dauphin and granite at Saint-Vaast-la-Hougue.

In regions with few quarries but plenty of clay, Vauban built in brick, as in Arras. In mountainous areas, he often used the pebbles washed down by the mountain streams.

When **the materials available on site** were unsuitable, Vauban arranged for suitable materials to be brought in. At Neuf-Brisach, pink sandstone was brought in on a canal built to connect it to quarries in the Vosges.

Building materials were also chosen to address technical concerns. At Besançon, brick parapets replace stone ones because brick shards are less dangerous when under fire.

The tower at Camaret-sur-Mer is nicknamed the 'golden tower' because of the colour of its crushed brick-based render made from impermeable clay, which is valuable on the Atlantic coast.

B / Uses

How do we now preserve these sites, whose military use is gradually being erased in favour of civil uses, in a way that respects the integrity of the property's components?

MULTIPLE PLANNED AND SPONTANEOUS USES

From the 18th century, the fortified sites were surrounded by 'no-build' zones that were highly coveted by both civil society and the army. These spaces are sometimes still marked by stones. Today, the fortifications encompass many recreational, leisure, sports and cultural uses for very varied audiences: landscaped gardens planted with ornamental species, market gardens or family gardens in the ditches from the 19th century, summer camp sites, zoos, stadiums and health or fitness trails.

Some of these spaces have been temporarily neglected, leading to the establishment of natural woodland, of biotopes for often rare species of fauna and flora, and sometimes of unlawful activities.

Gradual civil reuse of the fortified spaces in the 20th century has often happened without overall planning, as a result of successive development decisions that have not always been consistent with one another and do not necessarily reflect the spirit of Vauban's work. The vast unbuilt spaces of the ramparts have often become sites for heavy traffic, or for large car parks that sometimes host fairs and other events.

The way most of the structures are reused often makes the most of the characteristics specific to the sites.

The incorporation of citadels into the towns they once served is history's revenge; in Vauban's time, the towns had to pay for the construction of the citadels, which were used for the surveillance of populations that had been recently integrated into the Kingdom of France. By transforming these closed sites into open ones, a new alliance is established, providing a reminder of this power and oppression (e.g. the citadel in Arras, turned into a district of the city). Opening up these places to the local area and creating functional and visual links between towns and these 'new' spaces should be a priority, because this encourages appropriation of the fortified heritage by the local communities.



ACCESSIBILITY OF THE FORTIFICATIONS

Accessibility is a particular problem for the future of the fortifications of Vauban because these ramparts were generally built in the places that would be the most difficult to 'take'. As part of the project to convert these properties, for example following the army's departure, the challenge is to open them up to new uses. It is tempting to create new, wider access points with surfaces that make access to the sites easier for as many people as possible (people with mobility problems, pushchairs, etc.), or to provide facilities for new modes of transport... But stronghold gates, often the only means of access to the interior, are not suitable for contemporary vehicles and are inappropriate for simultaneous use by visitors on foot and motor vehicles.

Glacis and ditches are often ideal places for **parking vehicles** close to the fortification. But these developments can obstruct the perception and understanding of these outworks used to withstand the impact of firing. In too many cases, these fortifications inscribed on the World Heritage List can only be viewed across a sea of parked cars.

Cars are a crucial, exponential problem at Vauban's sites, more so than elsewhere. Should they be allowed inside, as this

makes it difficult to explore the gates and saturates the urban space? Should they be parked around the immediate perimeter of the sites, obstructing any proper view from outside?

Any new development projects must therefore carefully consider the new uses to be made of the site and the actual needs that they will generate. **These needs can and must be met without compromising the site's intrinsic value.**

CIVIL APPROPRIATION AND DEFINITION OF NEW USES

High quality **public spaces** help to create favourable conditions for investment and for the reuse of the sites. To achieve this, a development master plan is needed that includes an analysis of the property's heritage value. The direction provided by such a plan will enable operations to be carried out on a phased basis but will still ensure development is coherent over the long term. The most effective way of preserving this fortified heritage is undoubtedly to raise public awareness to its value and to reoccupy the sites with compatible functions. The management plan, and the local cultural project which is its guiding thread, are effective tools for ensuring that the attributes of each component are embedded in this

reference document and for making them part of an integrated approach over the long term.

Preference should be given to programmes that create or strengthen the way the sites complement the pre-existing urban, economic and social fabric to ensure new uses have a sustainable future (or indeed can be operated profitably). The Vauban heritage and its value should guide the programme, and not the other way round. For this reason, any project must be based on solid analysis and document-based studies of all the heritage values at stake.

Future uses could compromise aspects such as the symbolic and commemorative value, identity, landscape, nature and heritage, authenticity and even integrity of Vauban's work. But they could also promote them. In any case, the value of the Vauban fortifications should be included in the objectives of any future use made of them.

C / Values

In many cases, the Vauban fortifications were places where fighting took place either before, during or after Vauban's time. Because they were in the possession of the army until the 20th century (and some of them still have a military function), the sites are often places of remembrance and have **historic value**, presenting traces of the geopolitical evolution of the land (wars, conflicts, alliances, treaties).

In the collective memory, they can be symbols of authoritarianism, e.g. central State oppression against outlying provinces, the identities of which are then erased. Forts and citadels can also, as recently as the previous generation, represent negative values of imprisonment, State violence and execution by occupying forces.

They can also have strong positive **symbolic value**: the Vauban fortifications were built to secure the kingdom's boundaries and manage conquests, and for a long time they continued to have a military function, so they embody the desire to uphold peace and protect human life and represent efforts made to achieve this.

The vast scale of the construction sites in these outlying provincial towns newly annexed by the kingdom of France played a decisive role in the emergence of a more homogeneous architecture: construction sites were the place where the practices of classical engineers and those of local stonemasons collided and immediately fused, with a unique style emerging from each site, which had massive repercussions for civil and religious construction.

The fortifications also bear witness to a scientific and technical culture unique to military engineering in the Europe of the Enlightenment, marked by mastery of water systems, soil mechanics, material resistance, mapping of the terrain, geology, rationality in all its practical dimensions, and the search for ideal forms, which subsequently found important applications in civil environments and for trade in Europe.

Today they have become protective symbols for the towns and cities that they overlook or encompass, but also, because they are often at the former borders of a Europe under construction, they also symbolise the strong links

between peoples that history had separated, as the routes linking the forts in the Alps, the Pyrenees and the Saar/Lorraine/Luxembourg show.

Civic coats of arms often bear witness to the fortifications' **identity value**, with which local communities identify, thus making these sites ideal for hosting festive, educational, sport, cultural and economic events.

The fact that they are part of a serial property inscribed on the UNESCO list is shown by a common commemorative plaque, reflecting the pride of local communities in having a globally recognised heritage site in their midst, displayed at all 12 sites, and soon at 15 sites if plans to extend the property to the candidate sites (Lille, Le Quesnoy and Breisach am Rhein) are successful.

PRINCIPLES AND RECOMMENDATIONS

A military presence at an old fortified site can be a good way of preserving heritage and perpetuating the intangible values linked to continuous military occupation of the site, even if it is in a different way than at Vauban's time.

Transforming military sites into civil ones is sometimes necessary and can be an essential condition of their preservation for future generations. This transformation must be based on urban planning studies, assessments of heritage value and a thorough survey of the site and its immediate area.

The following principles will guide choices as to new development projects and their implementation.



A / Preservation through development

MORPHOLOGY OF THE SITES AND LANDSCAPES

The **main sight lines** from inside the property or from outside looking towards it (axes, views or perspectives of attack and bombardment, axes of fire for the defending side, perspectives for understanding the flanking and defilade principles) need to be clearly defined in

relation to the distinctive characteristics of each component.

These main sight lines give an understanding of **how the Vauban fortifications functioned tactically**, show the direction from which enemy forces were expected to come and the location of siege camps, and illustrate the concepts of flanking and defilade in relation to the structures.

Also evident is the continuity of the fortifications' sentinel function; they still offer spectacular views over the surrounding area today.

> **From outside**, panoramic or framed views towards the fortified site need to be identified and evaluated, based on the scale of the landscape in question, the character of that landscape, and the different approach routes to the site.

> **From the site itself**, the landscape seen in its territorial context as perceived by Vauban needs to be understood, beyond the UNESCO buffer zone.

> **The sight lines to be preserved** around each of the sites, with their diverse and iconic landscapes, need to be assessed.

> In general, the ability to see the overall morphology of the site and the land it defended needs to be preserved and if possible improved, by avoiding construction affecting the morphology of the terrain along lines of attack or bombardment or new building on the glacis.

> **The enlargement of buffer zones**, often on an intercommunal basis, should be based on analyses of the most sensitive viewing angles.

> Bird's eye and satellite views (e.g. from Google Maps, drones, hang gliders or paragliders), which are increasingly accessible to the general public, also need to be taken into consideration.

When diagnosing the state of the ramparts, a study of fauna/flora listing any species of special importance, should be included in a general study (invertebrates, amphibians, birds and bats, endemic flora). Any works can therefore be carried out in a way that is sensitive to fauna and its habitat and **reconciles nature, use and heritage**.

Installing wind turbines that are 100 to 200 m high and visible from a great distance alters the landscape considerably. Because of their size, they have an impact on our sense of space and should therefore be sensitively integrated into the landscape in the same way as other large structures (e.g. bridges, viaducts, etc.), radio masts, major infrastructures, urban sprawl, and industrial facilities.

> Any wind farm project should be the subject of impact studies or statements. These include analysis of existing natural environments and impact of the development on fauna and flora. In the case of the Vauban sites, care should also be taken to ensure that this type of infrastructure does not affect the heritage attributes or values identified for each site.

> **A landscape impact area** will be defined beyond the buffer zone, based on an analysis of the area from which the fortified site is visible and comprehensible, and on an examination of the views from the monument. This area will be broken down into an area of tighter conservation rules and a surveillance area. In areas with no significant impact on the property, wind farm projects could be implemented. An evidence-based study of the landscape must be carried out in this respect for each site where there is potential for wind generation.

> Buffer zones must now be included in planning documents by law (Article L612-1 of the French Heritage Code). An enlarged buffer zone could be based, in some cases, on a landscape impact area.

At Saint-Vaast-la-Hougue, from the sea on the assailant's side, the two vertical forward towers, approximately 30 metres high, contrast with the horizontality of the hilly landscape and the wetland in the background. The issue here is to prevent any competition due to these towers being dominated by high wind turbine masts.



© GUILLAUME MÜLLER

For example, the view from the Chaudanne hill towards the citadel in Besançon, built on a high saddle forward of the wooded hills, is along the axis of bombardment. The landscape impact area will enable its surroundings to be protected from any wind generation projects that would obstruct an understanding of the site and its scale. There are many other iconic views of the citadel that are a testament to the scale of the site; the challenge here is to protect them.



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USES

New uses shall be defined within the limits of the component's capacity (the pressure that the monument can withstand in terms of conservation challenges and the tolerance limits of the local population and the fauna and flora on the site), with reference to both its surroundings (accessibility and parking) and the area within its walls. This will be guided by the number of soldiers and where relevant civilians that Vauban planned to accommodate. These new uses (housing, tertiary activities, leisure activities, catering, etc.) must also **respect the heritage value of the site**.

> As a priority, the converted spaces will be **open to the public**. Exclusively private uses of the property inscribed on the World Heritage list will be limited, except in the case of housing, to foster the sense that they belong to the local community. Development of enclosed or private fenced spaces should be avoided, except where this is required by the programme or for safety. The use of spaces originally designed for assemblies and for circulating (esplanades, promenades, squares, etc.) for the same purposes should be encouraged.

> New uses must be **compatible with and respectful of all of the site's attributes and values**. Account should be taken of these through specific, symbolic aspects of development (encouraging the perception of the site as a monument with any landscaping) that foster a sense of identity (creating public spaces as a priority).

> Any conflicts of use should be anticipated, but the site should preferably be given over to a good mix of different uses.

> **Large car parks should be avoided** as far as possible, especially where there is a dominant viewpoint. Where these amenities can be well integrated into the landscape, it is better if they come into view 'at the last moment' when approaching the edge of the ditch.

> While not preventing new uses, the challenge will be to make choices that, as far as possible, allow an **understanding of the original situation** and the functional organisation of the site, and use materials that integrate harmoniously with the environment.

DELIVERIES / EVACUATION / ACCESSIBILITY / COMMUNICATION WITH THE TOWN

This theme should be a central thread and carefully thought out to bring networks and communications up to date:

> Either Vauban's desired configuration limits them and dictates the choice of new uses compatible with this requirement,

> Or the requirement 'brings the site out of its isolation', making it intentionally a very open place.

Difficulties with site accessibility are a characteristic of fortifications. Programmes that include developments to make access to the site easier must take account of the fact that creating a new approach road can potentially compromise an understanding of the place and its profile as a heritage site.

Parking should preferably be provided along roadsides so that it is better integrated into the landscape, if an underground solution is not available. Special surfaces can reduce the visual impact of this. The creation of above-ground car parks should be avoided both within the walls and around the outside.

B / Architectural and landscaping work

The integrity of heritage buildings can be assessed by carrying out a diagnostic survey of the buildings, which generally includes a presentation of the project, a historical overview, a general survey, a presentation of the structural condition and a description of any technical installations (electricity, heating, ventilation, plumbing, etc.). This enables a **hierarchy** to be drawn up **of protection, conservation, rehabilitation, restoration and reconstruction works**. It also helps to assess whether mitigation measures need to be taken if the new work would negatively affect a site attribute or value.

Exact **restoration** to its original condition can also be considered, and several reference periods can co-exist on the same site. In accordance with the Venice Charter, account should be taken of significant historic contributions to the development of the site. All decisions should be properly documented, especially when elements that had disappeared are rebuilt.

Contemporary work must be reversible.

ENVELOPE

> **Outstanding views** must be preserved and enhanced. Important views that have been hidden by vegetation must be cleared and maintained by a regular maintenance programme.

> **Earthworks** bear witness to the way the fortification functioned. Their profiles must remain obvious and they must be maintained to prevent subsidence or erosion. Where these profiles have subsided or eroded, conservation and maintenance work may be carried out to make them clearer and prevent their disappearance. Traffic (pedestrian, mountain bike, etc.) must be controlled and channelled along specific routes (maintained paths, viewpoints).

> Because **the tops of ramparts** were not originally intended for human traffic, the public must be discouraged from climbing on them, using discreet and preferably natural fences. The creation of safe belvederes and footpaths for exploring the site are other ways of responding to the problem of keeping people safe.

> **Paths** should be surfaced in the most natural and permeable way possible.

> **Vegetation** requires intervention specific to the problem, including in particular:

- The removal of woody vegetation from the rampart walls and slopes to protect the stonework of the fortifications from damage by roots;

- The preservation and renewal of trees original to the fortification (on terre-pleins, behind parapets), and of those planted for landscaping reasons; the preservation of trees that have helped to retain the soil; removal of self-sown trees that are obscuring the defence system, except where they are of environmental importance; conservation of trees that provide comfort for visitors (shade);

- Management of shrubs to preserve important views (maintenance, size, removal if necessary);

- Preservation of areas of interest from the point of view of fauna and flora, where these do not obscure or damage the fortification;

> **Water and water systems** are an essential part of the functioning of the fortification (water supply, storage, flow, defence). It will be necessary to:

- Conserve reference water systems, maintain structures, control levels and the stability of banks;

- Maintain wetlands and manage the associated flora.

WITHIN THE WALLS

Work to be done within the walls will be guided by the following principles:

> Preservation of the solid, utilitarian architecture dictating the aesthetic of the fortifications by using an understated architectural style for any new work, which must be inspired by rational architecture with codification by Vauban of the military buildings (barracks, gunpowder magazines, arsenals, gates).

> Adaptation to the terrain dictates that it makes sense to use locally available building materials (or their equivalents). Contrasting materials and ornamental features can be used to make contemporary works (preferably reversible) stand out from the integrity of the pre-existing structures. Pastiche should be avoided.

> Former military open spaces should be developed in a way that makes clear their use as assembly grounds.

> The building diagnostic survey must be carried out to assess the authenticity and integrity of the building, e.g. its 'structural integrity'. It also provides useful guidance for the restoration of existing structures, the repair of damage, and for making the structures compliant, and can also be used to recommend further studies if these should prove necessary (surveys, diagnostic reports, monitoring, etc.).

RESPECT FOR VAUBAN'S PLANS

> Prioritise the conversion of existing buildings over their extension or the construction of new buildings.

> Land reserves identified in Vauban's plans (in the 'no-build' zone for town expansion or incomplete Vauban projects) can be used to justify new constructions within the limit of reasonable contemporary needs.

> Demolition can be considered only in the following cases:

- Where carrying out new work would negatively affect a site attribute or value;

- Where the building poses a risk to people's safety;

- As part of an overall project to enhance or restore a relevant reference stage of the work.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE – OUV – FORTIFICATIONS OF VAUBAN

ADOPTED BY THE WORLD HERITAGE COMMITTEE ON 7 JULY 2008

The work of Vauban constitutes a major contribution to universal military architecture. It crystallises earlier strategic theories into a rational system of fortifications based on a concrete relationship to territory. It bears witness to the evolution of European fortification in the 17th century and produced models used all over the world up to the mid-19th century, thereby illustrating a significant period of history.

CRITERION (I): Vauban's work bears witness to the peak of classic bastioned fortification, typical of western military architecture of modern times.

CRITERION (II): Vauban played a major role in the history of fortification. The imitation of his standard-models of military buildings in Europe and on the American continent, the dissemination in Russian and Turkish of his theoretical thinking along with the use of the forms of his fortification as a model for fortresses in the Far East, bear witness to the universality of his work.

CRITERION (IV): Vauban's work illustrates a significant period of human history. It is a work of the mind applied to military strategy, architecture and construction, civil engineering, and economic and social organisation.

The property guarantees the integrity and authenticity, and reflects the various facets of Vauban's work. Its legal protection is satisfactory; the administration by the State and the local authorities provides satisfactory guarantees and responses regarding the natural and tourism risks involved. Pooling experience in the areas of restoration and enhancement of the properties within the Network of Major Vauban Sites has already begun.



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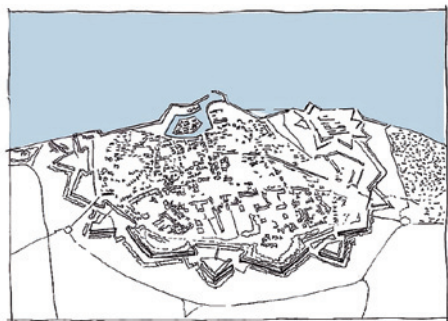
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TYPES OF VAUBAN FORTIFICATIONS BASED ON THE DIFFERENT GEOGRAPHICAL BOUNDARIES TO BE DEFENDED

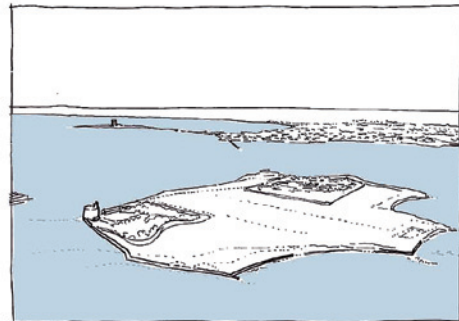
SEA FORTIFICATION SITES

Defence of an island



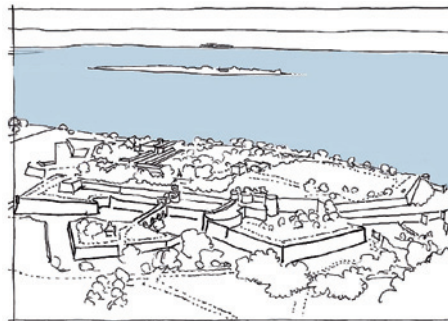
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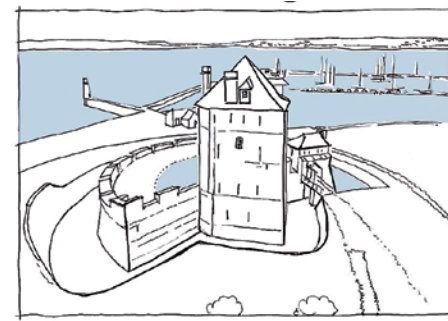
SAINT-VAAST-LA-HOUGUE

Estuary lock-out



BLAYE / CUSSAC-FORT-MÉDOC

Defence of a river channel



CAMARET-SUR-MER

MOUNTAIN FORTIFICATION SITES

Control of a valley



VILLEFRANCHE-DE-CONFLENT

Defence of a meander



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BESANÇON

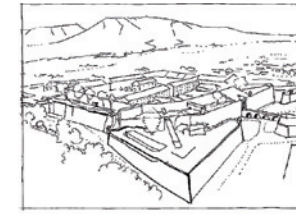
Defence of a promontory



LONGWY



MONT-DAUPHIN



MONT-LOUIS

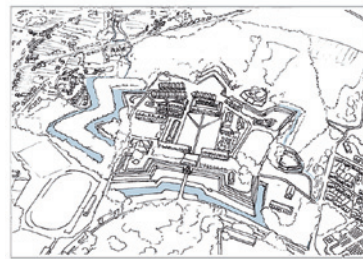
PLAIN FORTIFICATION SITES

New fortification on a plain



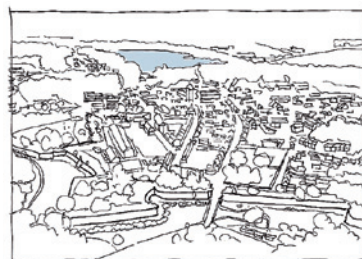
NEUF BRISACH

Defence of a plain

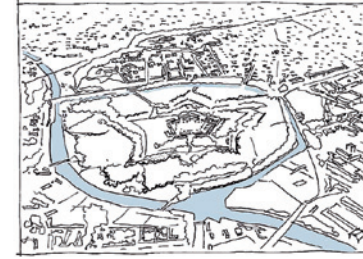


ARRAS

Defence of a flood zone



LE QUESNOY*



LILLE*

Bridge guard control



BREISACH AM RHEIN*

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