

FROM SPONTANEOUS TO DESIGNED: SCENARIOS FOR OPEN SPACE CONVERSION IN A HISTORICAL TOWN CENTRE

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Fortifications formed European cities for centuries, from the ancient to modern times. Fortresses and city walls were always linked to open spaces – be it for strategic (wide open spaces, including moats from the outside of the city walls) or functional reasons (open spaces for leisure and food growing). The Nové Zámky Fortress built in the 16th century and demolished in the 18th century has still a strong historical legacy in both local identity and urban form. The paper elaborates on a challenging design assignment – to convert an informal open space with spontaneous and partly invasive woody vegetation to an attractive public park with new open space qualities. The design methodology consisted of three main working phases – field work, analytical work and design work. The results provide three different design scenarios with various approaches to introducing a contemporary layer to the historical urban fabric.

Keywords: fortress, landscape architecture, research by design, studio teaching, urban design

1 Introduction

The Department of Landscape Architecture at the Slovak University of Agriculture in Nitra was commissioned by the Municipality of Nové Zámky in 2018 to elaborate a landscape architectural study with different design scenarios for a publicly accessible open green space at the boundary of the historical town centre. The open space is located at the site of one of the six former bastions of the 16th century Renaissance fortress that has not been preserved. The introductory paragraph is dedicated to history of fortification landscapes in Slovakia and Central Europe from ancient to modern times. It elaborates on the mutual relationship and diverse urban design situations between fortification systems and open spaces, both from the historical and contemporary perspective. The design setting is historically contextualised by a brief insight into the history of the Nové Zámky fortress.

1.1 From ancient to modern: A brief history of fortifications in today's Slovakia

Fortifications formed European cities for centuries. Limes Romanus (Roman Limes), an extensive fortified 5,000 km long borderline of the Roman Empire that reached its greatest extent in the 2nd century AD was perhaps one of the most famous fortified frontiers in human history. A part of this borderline stretched along the river Danube and led for instance through Vindobona (now Vienna, Austria), Gerulata (now Rusovce, Slovakia), Kelemantia (now Iža, Slovakia), Brigetio (now Komárom, Hungary) and Aquincum (now Budapest, Hungary) or the partly preserved Carnuntum in today's Lower Austria that used to be the capital of Upper Pannonia with some 70,000 inhabitants (Bruckmüller, 2001; Institute of Monuments Preservation, 2002). Another famous part of the Limes was built on the orders of Emperor Hadrian around 122 AD. The 118 km long Hadrian's Wall (now in the United Kingdom) was the northernmost limit of the Roman province of Britannia (UNESCO, 2008).

Most of the fortified castles and towns across European cultural landscapes date back to the Middle Ages (5th to 15th century AD). In today's Slovakia the most famous castles were built or re-built in the 13th century, after the Mongol (known also as Tartar) invasion in 1241, including the Bratislava Castle, the Spiš Castle, the Ľubovňa Castle and the Komárno (Comorra/Comar) Fortress (Dvořáková et al., 2017). The Ottoman invasions in the 16th century, especially the Battle of Mohács (1526)

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■ Figure 1: Fortresses in Komárno, Nové Zámky and Leopoldov (A–C) in the 19th century Source: Second Military Survey of the Habsburg Empire (Hungarian Kingdom, 1819–1869); Mapire – Historical Map Portal, Arcanum Database Ltd.

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and the Siege of Buda by the Turks (1541) brought the necessity to fortify or rebuild already existing castles (e.g. Modrý Kameň, Červený Kameň and the Levice Castle), existing fortresses (e.g. Komárno) and to build new fortresses (e.g. Nové Zámky and Leopoldov) or fortifying existing monasteries (e.g. Bzovík). The Komárno Fortress was rebuilt into a typical Renaissance bastion fortress in 1540-1550 s (Gráfel, 1999), the Nové Zámky (Castellum Novum) Fortress was being built from 1573 to 1580 and the Leopoldov (Leopoldina/Leopoldstatt) Fortress was built in 1660s after the siege of Nové Zámky (Pisoň, 1973). Fortresses in Komárno and Leopoldov have been preserved until today. The one in Nové Zámky was demolished in 1724-1725 (Figure 1). Only the urban design structure - the shape of the former fortress and the orthogonal road system are still readable from maps and aerial views. Similar fortresses to the one in Nové Zámky have been partly or completely preserved across Europe, for instance in Karlovac (Croatia), Bourtange and Naarden (both in the Netherlands). After the Ottoman invasions, most of the medieval and modern fortresses have partly or completely lost their strategic importance and protection function, however, they have been rediscovered in later war times.

1.2 Behind the walls: There was no fortress without open space

Fortification systems were normally accompanied by open spaces of different type, size, function and strategic importance within or outside the fortified complex. Ancient Egyptian, Persian, Greek and Roman gardens were all fenced by walls. Bostans - open spaces along the Theodosian Wall that used to protect Constantinople (today's Istanbul, Turkey) have been used for growing crops and vegetable for centuries and have gradually become an important landmark and a living agricultural heritage of the city (Timpe, 2014; Keil and Heimig, 2018). The St. Wenceslas Vineyard in the Eastern part of the Prague Castle area was established already in the 10th century and was later enclosed by a wall under the reign of King Charles IV (1316–1378). The Agdal Gardens in Marrakech (Morocco) with extensive groves of orange, lemon, fig, apricot and pomegranate trees planted in rectangular plots, linked by olive lined walkways, cover some 4 square kilometres and date back to the 12th century. Their name is derived from the Berber language and means "walled meadow" (Navarro et al., 2017). Medieval castles usually had enclosed gardens - Hortus Conclusus, while medieval monasteries had enclosed, centrally located rectangular and orthogonally organised Eden Gardens, as well as orchard cemeteries and production gardens with herbs and vegetables (Wiede, 2016).



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Modern city fortifications and fortresses were normally surrounded by wide open spaces for defensive reasons. The city walls of Vienna were surrounded by the Glacis (1529–1858), a wide open field that served as a protection zone and later was used by the inhabitants as an urban open space from the 16th to the mid-19th century. In 1857, a decision was made by Emperor Franz Joseph I. to demolish the fortifications and establish a boulevard. As many as 85 planning projects were submitted in 1858 for the new Ringstraße. This large-scale urbandesign intervention enabled the construction of important public buildings (e.g. the state opera, the museums of natural history and art history, the parliament, the city





Figure 2: View of Nové Zámky (A) and its siege by Ottoman Turks in 1663 (B) Source: Slovak National Gallery – Web Umenia Portal; Galéria umenia Ernesta Zmetáka v Nových Zámkoch – public domain – engraving by Gaspar Bouttats (B)

hall and the university), as well as the establishment of new or the redesign of the existing green spaces (e.g. Stadtpark, Burggarten, Volksgarten, Rathauspark and Sigmund-Freud-Park) (Faber et al., 2014).

In Nové Zámky, being just a provincial town, there was no urban design competition or urban planning for extending the city after the demolition of the fortification in 1724–1725 and the surrounding water moat in 1822. The city has organically grown outside the walls, without developing specific urban design solutions for the wide open spaces left after the deconstruction of the wall and the moat and the open spaces of the surrounding open spaces. Only some of the former bastions have remained as open spaces - the Calvary Hill on the former Forgách Bastion, and spontaneous green spaces on the former Zierotin and Friedrich Bastions, all three located in the South. The northern bastions were completely built up or sealed for parking.

Nonetheless, whether preserved, reused or demolished, fortifications formed urban landscapes across most of European cities for centuries and have led to the establishment of typologically diverse urban landscapes – unique historic sites such as the one in Komárno. modern planned boulevards with public buildings and parks such as the one in Vienna, restricted areas like the fortress prison in Leopoldov or everyday landscapes with a specific, yet not distinctively articulated historical legacy such as the one in Nové Zámky.

1.3 Historical contextualisation – the rise and fall of the Nové Zámky Fortress

The Nové Zámky Fortress (Castrum Novum/Castellum Novum/

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Neuhäusel/Érsekújvár) was built between 1573 and 1580 based on the project of Italian architects Ottavio and Giulio Baldigara. The construction works were led by Friedrich Zierotin. The fortress had a hexagonal ground plan with six bastions at its vertices, an orthogonal road system, a centrally located rectangular square, two gates (Viennese and Esztergom Gates) and an extensive underground tunnel system. The fortress was surrounded by a water moat fed by the river Nitra. At the time of its construction, it was the most advanced state-of-the-art Renaissance fortress in the empire. The fortress was first conquered in 1621 by Gábor Bethlen (1580-1629), prince of Transylvania (soon reacquired by the Holy Roman Empire within the Peace of Mikulov). The Ottoman army managed to conquer the castle in 1663 when it became the northmost point of the Ottoman Empire. The fortress was reconquered by the Holy League (established under the auspices of the Holy See and composed of the Holy Roman Empire, Poland, Venetian Republic, Tsarist Russia, Bavaria, Brandenburg and Saxony) in 1685. The fortress of Nové Zámky acquired city rights in 1691. The fortified city was united with the surrounding medieval settlements Nyárhíd, Lék, Györök and Gúg in 1733 by the Letter of City Privileges. The fortress was occupied by Kuruc troops (anti-Habsburg rebels) in 1704 (reconquered by the Empire in 1710). The Nové Zámky fortress was demolished in 1724-25 on the order of Emperor Charles VI (1685-1740). With the destruction of the fortress, a century and a half lasting strategic function of Nové Zámky ended. The water moat was destructed in 1822. The original urban design of the fotress - the hexagonal shape and the orthogonal road system - has been preserved until today.

1.4 The challenge of designing a former fortress landscape

Re-designing open spaces in historical town centres with unique urban landscapes represents a real challenge for landscape architects and urban designers. In these historical places, many time layers have heaped up, which should open a completely new field of cooperation, while exploring the boundaries of the landscape architecture profession and integrating landscape archaeology that approaches human history and cultural monuments at a rather complex landscape scale (Fairclough, 2012), as well as historical geography that acts as a bridge between historical and cultural sciences and helps uncovering the essential time-depth of any landscape that is to be developed by landscape architects (Kleefeld and Schenk, 2012; Hunt, 2016). Design studios provide the opportunity to implement project-based and hands-on teaching in landscape architecture (Jørgensen et al., 2019). The diversity of project and space typologies is very wide, reaching from public to private, from large-scale to small-scale, from urban to rural (Halajová et al., 2018b). Previous design studios in Nitra were dealing for instance with hospital open spaces (Halajová et al., 2019), environmental education landscapes (Tóth et al., 2018), primary school open spaces (Feriancová, 2014), a public park at a medieval castle, open spaces of a university campus or rural open spaces in several villages and small towns, just to mention some of the most recent projects (Halajová et al., 2018b).

2 Material and methods

Following a successful design studio dedicated to the re-design of the Main Square in Nové Zámky led by Professor Feriancová in 2016/17, the Department of Landscape Architecture (SUA Nitra) was commissioned to develop design scenarios for a public open space located at the boundary of the historical town centre by the Municipality of Nové Zámky in 2018 (Figure 3). The open space is situated at the site of one of the six former bastions of the hexagonal Renaissance fortress from the 16th century.

Currently, the open space has a rather informal character. It is used by the public to shorten everyday routes between the city centre, the bus station and the train station in the North and a large residential zone in the South of the historical town centre. The area is currently covered by grassland and spontaneous woody vegetation creating a vast, yet informal urban green space in the city centre with a great potential for creating a high-quality open green space for the citizens and visitors of Nové Zámky. There is also a small building of "Astrokabinet" with a small-scale amphitheatre for observing the dark sky and organising events in the summer.

The assignment of the Public Space Design Studio (winter term 2018/2019) was to develop three different design scenarios by three student working groups, supervised by Dr. Attila Tóth (Assistant Professor of Landscape Architecture SUA Nitra).

The methodological process of the design studio followed a standard studio methodology as defined by Halajová et al. (2018a). It can be divided into three main working steps:

1. **Field work** – within this working step, mainly descriptive strategies such as observation, secondary description, complex description,



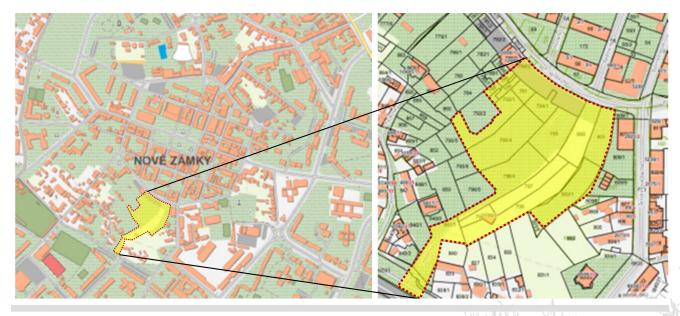


Figure 3: Delimitation of the assigned area in the urban fabric of Nové Zámky Source: Geodesy, Cartography and Cadastre Authority of Slovak Republic, drawn by Tóth (2019)

inventory of woody plants, and collection of site-specific data (Deming and Swaffield, 2011) were applied. The field work included the method of walking the site with local stakeholders (Van den Brink et al., 2017) and discussing positive and negative aspects, potentials and expectations.

 Analytical work – within this step the data collected and documented on site and materials gained from online search (e.g. the current Land Use Plan of Nové Zámky, maps, texts and historical pictures) were further processed within seven thematic analyses – 2.1) analysis of wider relations (Figure 4A), 2.2) functional and spatial analysis, 2.3) landscape analysis, 2.4) urban-design, architecture and transport analysis, 2.5) compositional analysis, 2.6.1) vegetation analysis – inventory of woody plants (Figure 4B), 2.6.2) vegetation analysis – thematic layer maps, and 2.7) historical analysis (Stahlschmidt et al., 2017; Kuczman, 2018).

 Design work – the design process itself provided opportunities for further research of the site, such as identifying urban-design and compositional relations or developing site-

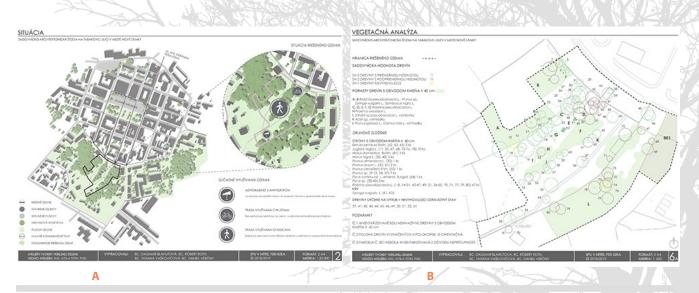


Figure 4: Situation of the open space in the urban fabric (A) and inventory of woody plants (B) Source: Department of Landscape Architecture, SUA Nitra – Public Space Design Studio 2018/2019 (students: Blahutová, D., Roth, R., Vaškovičová, T., Veróny, D.; teacher, head of the studio: Tóth, A.; assistant: Čibik, M.).

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specific solutions following the conception of Research by Design as defined by Deming and Swaffield (2011) and Van den Brink et al. (2017). In the design process, theoretical groundings of function and form generation (Herrington, 2017) and other open-space design principles (Štěpánková et al., 2012) were applied. The design process included two direct interactions with local stakeholders from the municipality of Nové Zámky in the form of 3.1) interim critique and feedback, and 3.2) final presentation and feedback.

3 Results and discussion

The results of the Public Space Design Studio 2018/2019 consist of three different design studies/ scenarios for public open green space conversion in the town centre of Nové Zámky. Two working groups developed their spatial composition based on the existing urban structure of the historical town centre (Figure 5). One of the working groups extended the surrounding roads and streets and used this layout as their compositional framework (Figure 5A). The other group extended two of the orthogonal streets of the historical town centre and indicated the former bastion in the form of a circular walking trail with information

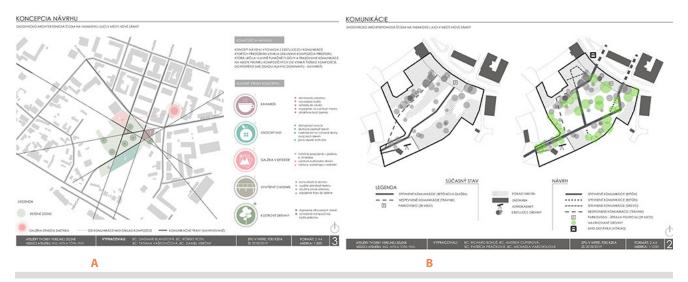


Figure 5: Developing design scenarios based on the existing urban fabric, generating new forms (A) and re-using historical site-specific forms (B)

Source: Department of Landscape Architecture, SUA Nitra – Public Space Design Studio 2018/2019 (students: left – Blahutová, D., Roth, R., Vaškovičová, T., Veróny, D.; right – Bohuš, R., Cuperová, A., Pračková, P., Varcholová, M.; teacher, head of the studio: Tóth, A.; assistant: Čibik, M.)

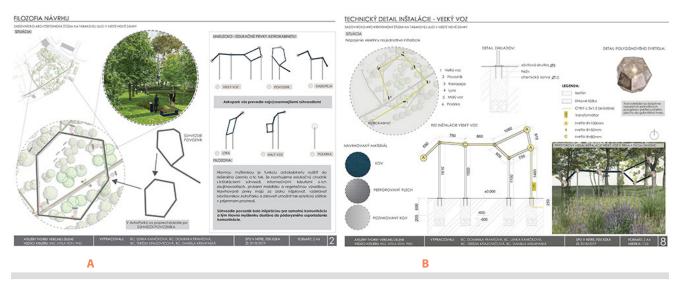


Figure 6: A symbolic approach to generating form inspired by constellations

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Source: Department of Landscape Architecture, SUA Nitra – Public Space Design Studio 2018/2019 (students: left – Kaničková, L., Frantová, D., Kňazovičová, T., Krempaská, D.; teacher, head of the studio: Tóth, A.; assistant: Čibik, M.)



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■ Figure 7: Comparison of the current situation of the open space with three different design scenarios Source: Department of Landscape Architecture, SUA Nitra – Public Space Design Studio 2018/2019 (students: A and B – Blahutová, D., Roth, R., Vaškovičová, T., Veróny, D.; C– Bohuš, R., Cuperová, A., Pračková, P., Varcholová, M.; D – Kaničková, L., Frantová, D., Kňazovičová, T., Krempaská, D.; teacher, head of the studio: Tóth, A.; assistant: Čibik, M.)

panels on the six former bastions (Figure 5B), creating thereby an allusive reference to the former bastion.

The third working group applied a different approach. Their form generation followed a rather symbolic approach and made reference to the existing "Astrokabinet" through designing the central circular walking trail in the shape of the Auriga Constellation (Figure 6A). This symbology makes its way from the conceptual thinking down to design details and artistic site elements inspired by famous constellations, asterisms and stars – the Big Dipper/Plough as part of Ursa Major, the Auriga, Cassiopeia, Lyra, Ursa Minor, and Alfa Ursae Minoris (α UMi) (Figure 6A and B).

The Public Space Design Studio generated three different design scenarios for converting the centrally located public open green space. All three bring new

ideas for further development of the site and provide a good framework for further discussions in the municipality. The current condition of the area with prevailing spontaneous and partly invasive woody plants (Figure 7A) would gain new open space qualities, while a new public park could be created that would enhance the urban green infrastructure and existing green space structures across the town (Supuka et al., 2008). The following scenarios were developed by the three working groups:

Scenario No. 1 "Urban Park" (Figure 7B) integrates most of the existing vegetation and enhances the site with a modern café (Figure 8A), a public orchard, an openair gallery, terraces and walkways, while enhancing the existing tree species composition by native long-lived tree species. It introduces a new urban form and new functions to the site.





Figure 8: Visualisations of the café design (A) and the thematic walk under wooden gates in a flower meadow (B) Source: Department of Landscape Architecture, SUA Nitra – Public Space Design Studio 2018/2019 (left – Blahutová, D., Roth, R., Vaškovičová, T., Veróny, D.; right – Bohuš, R., Cuperová, A., Pračková, P., Varcholová, M.; teacher, head of the studio: Tóth, A.; assistant: Čibik, M.)

Scenario No. 2 "Green Valley" (Figure 7C) enhances the existing open space with a design reference to the former bastion and the fortress. This scenario enriches the public space with information panels on the history of the fortress and its bastions, an open-air library and areading room, a terrace in the existing black-locust grove, a flower meadow with wooden gates referring to contemporary monuments of the town (Figure 8B) and many new site-furniture elements.

Scenario No. 3 "Astropark" (Figure 7D) builds upon the theme of astronomy and star observation through stylizing stars, asterisms and constellations. When implementing this scenario, the site would become an open-air dark-sky observatory with interesting design features such as lighting artistic elements in the shape of star formations, combined with perennial plantings.

4 Conclusion

The Public Space Design Studio 2018/2019 has provided the municipality of Nové Zámky with three different design scenarios for converting the informal open green space in the town centre with prevailing spontaneous and invasive woody vegetation into an attractive public open green space. The different design scenarios serve for the municipality as a useful material for internal and public discussions on the future of this open space. From the scientific perspective, the design studio provided a great opportunity to implement landscape theory and design principles in the teaching process and to conduct an interesting research by design on fortress landscapes and open space conversion. The new knowledge that was

obtained within this process includes knowledge on the importance and specificities of fortress landscapes across Europe. The most important results are represented by three design scenarios. The scientific significance of the work consists in furthering research in landscape architecture through design in Slovak conditions. The practical significance of the project consists in the implementation of project- and problem-based teaching and providing landscape architecture students with practical knowledge and skills and the opportunity to work on real sites, deal with real challenges and interact with local stakeholders. A recommendation for the city of Nové Zámky would be to initiate discussions with elected representatives of the local government and the public, to proceed to the project design phase and subsequently to the implementation of one of the scenarios. Further research could be geared towards exploring other medieval and modern fortress landscapes across Slovakia, to verify the applicability of the developed design approaches in other local conditions.

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