

DELIVERABLE D.T3.5.1

INVESTMENT PREPARATION DOCUMENTATION FOR PILOT ACTION IN TRNAVA

Version 1
10/2017

Authors:

Ing. arch. Tomáš Guniš, Coordinator of Expert activities, Department of Spatial Planning and Strategies, City of Trnava;

Ing. Jarmila Garaiová, Expert for Ecology and Environment, Department of Spatial Planning and Strategies, City of Trnava;

Ing. Jana Miklovičová, Expert for Investment, Department of Investment Construction, City of Trnava;

Mgr. Zuzana Luptáková, Project Manager, Department of Projects Management, City of Trnava.



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE IN PROSTOR



MESTNA OBČINA KRANJ





A. Table of content

A.	TABLE OF CONTENT	1
B.	ACKNOWLEDGEMENTS AND BASIC SOURCES	2
C.	LEADERS OF DESIGN:	3
D.	DESIGN TARGETS	3
E.	ACTIONS PRECEDING THE CONSTRUCTION DESIGN	3
	1. Pre-design preparation:	4
	2. Present state	5
	3. Construction design range	5
	4. Design assumptions	6
	5. Remediation	7
	6. Biodiversity	8
	7. Social participation	9
F.	DEVELOPMENT ELEMENTS	9
G.	RECAPITULATION	BŁĄD! NIE ZDEFINIOWANO ZAKŁADKI.

B. Acknowledgements and basic sources

As described in the report below, the Štrky area originally valuable biocentre of local importance had gradually changed into an abandoned and polluted place - a “green brownfield” in the past, mainly due to the lack of financial sources allocated to other investment priorities in the city residential area and intensive deforestation accompanied with industrial, agricultural and construction activities.

However, in 2002 the first attempts in planning of its revitalisation and sustainable use started. Since 2010 such effort has accelerated also thanks to participation of Trnava City in the CircUse project implemented during 2010 -2013 within OP Central EUROPE 2007- 2013 under which a feasibility study on revitalisation of Štrky greenfield was elaborated in 5/2013 verifying and evaluating environmental, ecological, and planning potential of this area and on the basis of such evaluation, designing overall revitalisation concept together with concept of spatial arrangement and functional usage of this area.

The following background documents including expert studies, maps and relevant national legislation were used in preparation of investment preparation documentation for pilot action in Trnava, which consists of A) Project Documentation for Spatial Decision (PD DÚR) and B) Realisation Project Documentation - Project Documentation for Building Permit (PD DSP):

EXPERT DOCUMENTATION AND RELATED STUDIES:

1. Atlas of country of the Slovak Republic. Accessible at: <http://geo.enviroportal.sk/atlassr/>
2. Kolník M., Document on woody plants maintenance - Štrky (2015)
3. Zibrin, P., The Spatial Plan of Trnava City (2015). Complex layout of spatial arrangement and functional usage of territory. Accessible at: http://www.trnava.sk/userfiles/download/attachment/ourak_UPN_2009_B02_v_2015.pdf
4. Wernerová E., a kol., Trnava - forest park Štrky - rehabilitation of area and its change for sport and recreation place. Feasibility study, CircUse, 2013 Accessible at: http://www.trnava.sk/sk/clanok/os-sportovo-rekreativnych-zon-2013#OS-SRZ_05/2013-2
5. All technical and legislation requirements of the Trnava City as investor.
6. Local Spatial System of Ecological Stability (MÚSES), 2008
Accessible at: <http://www.trnava.sk/sk/clanok/miestny-uzemny-system-ekologickej-stability>

MAPPING SOURCES:

1. Cadastral map
2. Planimetry and hypsometry of outlined area (geodetic survey done in 2017)

LEGISLATION NORMS:

1. Law No. 543/2002 Z. z. on nature and country protection (Ministry of Environment of the Slovak Republic)
2. Regulation No. 24/2003 Z. z. implementing Law No. 543/2002 Z. z. on nature and country protection (Ministry of Environment of the Slovak Republic)
3. Implementing Regulation No. 284/2001 on waste catalogue (Ministry of Environment of the Slovak Republic)
4. Law No. 79/2015 Z.z. on waste (Ministry of Environment of the Slovak Republic)
5. Law No. 364/2004 Z.z. on water (Ministry of Environment of the Slovak Republic)



C. Leaders of design:

- **MAIN DESIGNER AND AUTHOR OF THE OVERALL LAYOUT:** Ing. Júlia Straňáková, authorised landscape architect, RUDBECKIA, Svätoplukovo, Slovakia.
- **PLANNER OF GEOTECHNICAL DESIGN:** RNDr. Viliam Horváth, authorised construction engineer, Nitra, Slovakia.
- **PLANNER OF WATER SURFACE:** Ing. Štefan Matulík, authorised construction engineer, Nitra, Slovakia.
- **PLANNER OF GARDEN/VEGETATION DESIGN:** Ing. Júlia Straňáková, authorised landscape architect, RUDBECKIA, Svätoplukovo, Slovakia.
- **PLANNER FOR ELECTRICAL INSTALLATIONS:** Ing. Milan Chorvatovič, authorised construction engineer, Trnava, Slovakia.

D. Design targets

The main aim of the pilot action in Trnava, i.e. restoration of neglected natural park for sport and recreation zone in location Štrky, is to secure overall rehabilitation of currently abandoned area of Štrky, suffering from many burdens, for which it could be considered as a “green brownfield”.

On one hand, through this restoration an original natural value will be brought back to this biocenter of local importance and will be strengthened as well as increase of ecological stability of this area will be achieved. And on the other hand, overall rehabilitation will open up this area for broad public of Trnava City and Trnava FUA offering possibilities for sport, leisure and relax activities in natural environment. Trnava City still substantially lacks publicly accessible natural areas suitable for leisure activities such as parks and forest parks - nowadays there is only one bigger area called “Kamenný mlyn” (in English “Stone mill”), which has been intensively used for recreational, leisure and cultural activities of Trnava City inhabitants for many years.

This pilot investment is in accordance with the valid Spatial Plan of Trnava City (2015), where the Štrky area has been defined as a natural forest park and a biocenter of local importance.

E. Actions preceding the construction design

In principle, Trnava City had started to deal with the Štrky area within **2002 - 2006** when a planning feasibility study **“National shooting centre Trnava”** had been prepared in order to verify possible functional, architectural and landscape solutions for National Shooting Centre Trnava in the area of current shooting centre on which the Štrky area neighbours from southeast side. This study was an introductory background document for further investment documentation preparation in terms of National Shooting Centre construction, which, also dealt with the Štrky area as a natural forest park serving as a recreational and leisure spot. Accessible at:

http://www.trnava.sk/sk/clanok/urbanisticke-studie-2006#US_05/2006

Furthermore, in **2003** another planning study **“Sporting - recreational zone Štrky: part forest park Trnava”** was elaborated with aim to make more detailed spatial planning in the Štrky area and to propose optimal development of sporting and recreational infrastructure respecting bearing capacity of

this area. Moreover, within this study detailed dendrological survey of trees was done together with first proposals of forest park infrastructure.

Then in 2005 a survey of vegetation and flora was done during 5/2005 - 9/2005 and also environmental impact assessment (EIA) was carried out in line with the Law No. 127/1994 Z. z.

Accordingly, in 2013 the above mentioned feasibility study “Trnava - forest park Štrky - rehabilitation of area and its change for sport and recreation place” was elaborated within CircUse project. This study verified and evaluated environmental, ecological, and planning potential of the Štrky area and designed overall revitalisation concept together with concept of spatial arrangement and functional usage of this area. Also this study served as a background document for more detailed investment documentation, such as the Project Documentation for Spatial Decision (PD DÚR) and the Realisation Project Documentation for Building Permit (PD DSP).

Furthermore, in 2015 surface layer of municipal and biological waste was removed by Trnava City and main entrances to the area were cleaned. Then in 2016 the majority of municipal and construction waste dumps were removed as well as 254 pcs. of invasive and dry trees were cut down.

And finally, in 2017 within the LUMAT project detailed investment documentation has been prepared including elaboration of the Project Documentation for Spatial Decision (PD DÚR) and Realisation Project Documentation for Building Permit (PD DSP).

1. Pre-design preparation:

Within a process of investment documentation preparation for Trnava pilot action in Štrky following pre-design actions were done before elaboration of the Project Documentation for Spatial Decision (PD DÚR):

- **Geodetic surveys (meterage):** A detailed geodetic survey of Štrky area was done in 1/2017 within which natural area boundaries were fixed, moreover differences in the terrain, woody plants with trunk diameter above 40 cm as well as location of drills were metered. Also presence of engineering networks in the area was verified and all these parameters were horizontally and vertically fixed in the systems S-JTSK and BpV.
- **Dendrologic survey:** As the Štrky area has been abandoned and untreated for many years in 2015 Trnava City again carried out dendrologic expertise in order to check health state of woody plants and mark trees (33 pcs.) and bushes (71 pcs.) necessary to cut down because of health and security risks. Moreover, in southeast part of this area 254 pcs. of flight woody plants were cut down because of safety reasons together with further 30 pcs. of invasive trees and 75 m² of bushes, which were removed in order to make terrain accessible for hydrogeologic survey. Furthermore, in 3/2017 an inventarisation and vegetation evaluation of trees was carried out in order to make terrain accessible for water surface and to propose revitalisation of the overall greenery within Trnava pilot action.
- **Engineering-geological and hydrogeological surveys:** Both these surveys were carried out in order to determine geological composition, lithology, stratigraphy and hydrogeological regime in the area in order to design planned water surface. Within these surveys two drills 6 m deep were drilled taking samples, which were accordingly laboratory tested. Based on these terrain and laboratory works actual geological and hydrogeological conditions were specified including depth of underground water, its convection regime and filtration parameters of different layers.

2. Present state

The Trnava pilot investment action in Štrky is located in the north edge of cadastral area Trnava. The plot on which pilot investment will be realised is owned by Trnava City and officially maintained by one of its departments - Administration of Sport and Cultural Facilities. The area is of app. 300 m², part of the overall area serves as a shooting range, which neighbours Štrky area from northwest side. From southwest side there is a local communication, parking place and small cottages of local gardeners. From northeast and southeast sides the Štrky area neighbours with arable land. From north to south a small local river "Trnávka" flows, which is considered to be a over-regional biocorridor. Its river basin was regulated in the first half of the 20.century, what together with intensive agriculture, industry, transport and boosting building up producing air, water pollution and noise, have been negatively influencing this area for many years.

Other factor considerably contributing to alteration of this area to a "green brownfield" had been illegal dumping of municipal and construction waste by local inhabitants for several decades (scattered waste dumps could be about 40 years old). Moreover, the pilot area has been abandoned and unkept for rather long time, mainly because it is located out of the city residential area, in rural zone and due to limited financial sources it had not belonged to investment priorities of the previous city managements.

Originally this area belonged to so called "hard floodplain forests" composed mainly of ash, elm and oak trees, however, due to intensive agriculture and building up majority of original floodplain forests had been deforested and changed into arable land. This deforestation had considerably contributed to overall deterioration of this area and slow spread of invasive and flight wood species.

However, Trnava City has already started cleaning up of this area from waste dumps mainly in southeast part together with cutting down of other 254 pcs.of flight wood plants. Further cleaning of this area will continue during the Štrky pilot investment realisation including sensitive cutting of flight and invasive trees, which will be removed partly and partly left so that the area will remain natural environment.

3. Construction design range

Based on all challenges the Štrky area faces nowadays as well as on all relevant background documents, pre-design surveys and decision making, following design and construction scope has been approved for the Štrky area restoration:

1. Water surface:

- Preparatory terrain works;
- Setting of water surface;
- Drilled water well;
- Water supply object;
- Water pumping shaft;
- Delivery piping.

2. Vegetation and greenery:

- Planting of trees;
- Planting of water and marshy vegetation;
- Planting of meadow greenery.

3. Unpaved footpaths



4. Small architecture and mobiliari:

- Wooden resting shelter;
- Wooden benches with and without seat back;
- Wooden table;
- Dustbins with small shed;
- Info panels with small shed;
- Circular stone grill;
- Information tables in accordance with the programme publicity rules and in accordance with the Slovak construction law;
- Wooden boxes for birds and bats.

5. Lighting

6. Maintenance of vegetation and greenery during the 1. year of sustainability (not covered from the project budget):

- Maintenance of grass plots;
- Maintenance of water and marshy vegetation;
- Maintenance of newly planted trees;
- Maintenance of existing trees and greenery.

4. Design assumptions

As mentioned above, the Štrky area represents an example of green “brownfield” due to several “historical” factors such as:

- Excessive deforestation together with intensive agricultural, industrial and construction activities producing emissions, solid waste and waste waters.
- Regulation of local river “Trnávka” in the first half of 20.century and its polluting by intensive adjacent agricultural and industrial activities. Trnávka river is an over-regional bicorridor serving as a migration corridor for water and water linked animals.
- Intensive transport (road I/51) creating a barrier for migration of local animals.
- High percentage of invasive trees (above 50%) what decreases ecological stability and environmental value of this area.
- Long term unmaintenance due to lack of financial sources and other priorities at the city level management in the past.
- Irresponsibility of local inhabitants dumping this area with municipal, biological and small construction waste.
- Outdated and uncared infrastructure what together with presence of homeless people lowers recreational potential of this area.

Such severely negative state together with aim of the pilot investment activity under the LUMAT project and an effort of Trnava City to develop so called “green belt” of natural parks, forest parks and green

spots around the city belong to main assumptions, respectively main starting points for the Štrky design elaboration.

5. Remediation

In accordance with the Realisation Project Documentation for Building Permit (PD DSP) restoration of the Štrky area composes of the following main parts:

1. **Water surface:** In central part of the Štrky area an artificial water surface (lake) will be built up within the project, creating dominant part of the whole investment. Water surface consists of water surface itself (water basin) and two lagoons, a depth of the water will be up to 40 cm. Construction of the water surface includes preparatory terrain works, deepening of depression for water basin, adjustment of basin strands and installation of sealing layers, drilling of water well and other related constructions. Water and marshy vegetation will be planted on these strands cleaning the water and consolidating the basin strands. Source of the water for basin will be water well; a circulation of the water will be secured by pump. Surplus water will be brought back to surrounding vegetation and woody plants contributing to their irrigation. A small artificial hill called “sunny hill” will be made from earth left over after water basin deepening. It will represent another significant point in the revitalised area serving for relax, sun catching and leisure activities of future visitors.
2. **Vegetation and greenery:** Surroundings of water surface will be grassed by meadow greenery of 4 500 m². Moreover, water and marshy vegetation (835 pcs.) will be planted on water surface strands, contributing to the water cleaning, to consolidating of the basin strands and underlining dominant character of the water surface in overall restoration. Following water and marshy plants have been proposed: *Alisma plantago-aquatica*, *Carex pendula*, *Glyceria maxima*, *Iris pseudacorus*, *Phalaris arundinacea*, *Phragmites australis*, *Scirpus lacustris* and *Typha angustifolia*.

Furthermore, 120 pcs.of broadleaved trees will be planted in the area: *Fraxinus excelsior*, *Quercus robur*, *Tilia cordata*, *Ulmus minor*, *Acer tataricu*, *Carpinus betulus* and *Padus avium*. Also footpaths will be surrounded by natural underbrush what will contribute to natural character of the whole area.
3. **Unpaved footpaths:** A network of unpaved footpaths of 1 065 m totally made from milled gravel will be created, starting from three entrances to the area, leading to the water surface and joining main footpath rounding around the water surface. Moreover, educational footpath should be constructed at peripheral parts of the Štrky area where visitors could learn about local fauna and flora - design and production of educational tables have not been proposed within realisation project documentation - it is supposed that they will be installed during the project sustainability period.
4. **Small architecture and mobiliari:** Within realisation project documentation several types of small landscape architecture and mobiliari have been designed: 5 pcs.of wooden benches with seat back; 3 pcs.of wooden benches without seat back placed around the stone grill; 1 wooden table place under wooden resting shelter 3,5 x 4 x 2,5 m; 3 pcs.of dustbins with small shed; info panels with small shed; circular stone grill with diameter 120 cm and 100 cm high and wooden boxes for birds and bats. An exact placement of these boxes will be determined on the basis of ornitological survey, which should be done before restoration itself. All these items should be certified, with simple, natural design, made of wood and stone.
5. **Lighting and distribution network:** Within restoration of the Štrky area also lighting will be installed composing of 5 pcs.of lights with light columns 5 m high. Parking lights with LED bulbs will be used.

Also distributor and ground cable electricity distribution network will be constructed, serving not only for lighting but also for other electricity devices, e.g. water pumps.

6. **Maintainance of vegetation and greenery during the 1. year of sustainability:** This maintenance will be realised during the 1.year of the investment operation, i.e. during the 1.year of the project sustainability and it will be covered from the city's own financial sources. Within maintenance of grass plots cutting of grass will be done, together with weeding, additional setting of grass and leaves scrabbling, if needed. Moreover, within maintenance of water and marshy vegetation its cutting will be done together with weeding. Within maintenance of newly planted trees their irrigation will be realised. Finally, within maintenance of existing trees and greenery mainly removal/cutting of invasive and flight wood species will be realised. Responsibility for this 1.year maintenance stands with supplier of the overall revitalisation mainly because of an effort of Trnava City to assure high quality planting in the area - a supplier who has a contractual responsibility to take care of plants and trees during the 1.year after planting should carefully look after the way and conditions during the planting. After this 1 year maintenance at the side of supplier, the Štrky area will be maintained by the Administration of Sport and Cultural Facilities, one of Trnava City Office departments.

It can be concluded that the proposed design will have a significant positive impact on the local environment, because it supports fauna and flora biodiversity and restoration of the whole area to its original state, improves water regime and microclimatic conditions of this area, thus also partially contributing to adaptation of this area to climatic changes.

6. Biodiversity

As mentioned in the chapter on present state, originally the Štrky area belonged to so called "hard floodplain forests" placed on the bottom land of Trnávka river and composed mainly of ash, elm and oak trees. Such floodplain forest represents biotope of European importance (SK-Ls 1.2, NATURA-91F0). In 2005 within detailed dendrologic survey there was identified incidence of protected species *Althaea pallida*, which belongs to species of European importance.

What regards to fauna, 88 species of vertebrates were identified in the Štrky area: 4 species of amphibian; 1 species of reptile; 61 species of birds; 22 species of mammals out of which 10 species belong to European important species (i.e. *Bufo viridis*, *Hyla arboreal*, *Rana dalmatinal*, *Lacerta agilis*, *Lanius collurio*, *Dendrocopos syriacus*, *Myotis myotis*, *Nyctalus noctula*, *Plecotus austriacus*, *Cricetus cricetus*). Moreover, there are 66 species important from the national point of view (e.g. *Natrix natrix*, *Rana ridibunda*, *Rana esculenta*, *Erinaceus concolor*, *Glis glis*, *Sciurus vulgaris*, *Sorex araneus*, etc.). Such variety of species well documents that the Štrky area belongs to areas of high ecosozological value.

However, due to intensive agriculture, industrial and building up activities majority of original floodplain forests had been deforested and changed into arable/utility land. Currently, majority of this area is covered by young, dense overgrow of our typical broadleaved trees, such as *Carpinus betulus*, *Fraxinus excelsior*, *Populus alba* and *Cerasus avium*. However, there are also many of invasive wood species, e.g. *Negundo aceroides*, which will have to be removed. With regard to bushes, mainly *Sambucus nigra*, *Prunus spinosa*, *Cornus mas* and *Hedera helix* could be found mainly. Moreover, there is also excessive green coppice.

In line with the above given and although currently unkept "green brownfield" the Štrky area belongs to precious localities with high ecological and environmental value. It needs to be revitalised and preserved as well as used for recreation, leisure and sport activities in a very sensitive and balanced manner.



7. Social participation

Again, as it has been mentioned in previous parts here, the Štrky area had been facing unmaintenance of previous city managements, mainly because of limited financial sources which had been used for investments in the city residential area mostly. And accordingly, more less nobody had been working with local community, its awareness and relationship to this area. Basically, there is no local community such as in case of the Štrky area, because due to its unkept state mainly homeless people had been dwelling there and anonymous people (probably inhabitants of adjacent villages and of Trnava City) have been dumping their waste there for rather long time.

A gradual change has started mainly thanks to CircUse project and attention the current city management started to pay to environment of the city itself and its surroundings. During internal city discussions and decision making process before investment preparation documentation procurement and elaboration, there were no discussions or public hearings with local community/stakeholders, because these discussions and decision making needed to be more expert and professional, coming from approved city plans, strategic documents and expert standpoints.

The first contacts with local community, respectively with mayors of the Trnava FUA municipalities have gradually started within the LUMAT project during working meetings organized by PP8 where the project itself and namely the Štrky area revitalisation have been presented.

So this initial work with local community has already started slowly and will need to continue and deepen so that real relationship to and awareness on the revitalised area will be built up at local level. Responsibility and sustainable behaviour coming from such relationship and real awareness of local people visiting this area/spending their free time there, together with proper maintenance at Trnava City level should be “a guarantee” that the revitalised area will sustain an valuable environmental and ecological place and a great spot for leisure, recreation and relax in natural environment.

The first visitors of the revitalised area can be expected in spring - summer 2019 and already before that Trnava City plans to start information and awareness raising campaigns on the city web page, via the city television (The Trnava City Television - “MTT”) and other local media channels, as well as via various sport nad cultural events which will be organised in the Štrky area in future.

F. Development elements

A more detailed technical description of particular construction objects (SO) as designed in the Realisation Project Documenttaion for Building Permit (PD DSP) for Štrky revitalisation is given below:

SO 01 WATER SURFACE

As mentioned before, in central part of the Štrky area an artificial water surface (lake) will be built up within the project, creating dominant part of the whole investment. Water surface consists of water surface itself (water basin) and two lagoons, a depth of the water will be up to 40 cm. Construction of the water surface includes terrain works, deepening of depression for water basin, adjustment of basin strands, drilling of water well, construction of water supply object and pumping shaft, together with instalment of pump pressure pipeline and soothing shaft.

- The overall water surface: 2135 m²
- Length of water surface: 70 m
- Width of water surface: 45 m

- The average daily water consumption: 15,16 m³
- Maximum daily water consumption: 16,38 m³ / day
- The average annual water consumption: 1002 m²

Furthermore, within **terrain works (SO 01.1)** a water basin will be hollowed and a small artificial hill so called “sunny hill” will be constructed.

Within **adjustments of water surface (SO 01.2)** water basin will be adjusted and two lagoons will be constructed with water depth of 40 cm. The maximum water depth in water basin will be 2,05 m. The surface of the 1.lagoon will be 96 m² and the surface of the 2.lagoon is 110 m².

Furthermore, within **(SO 01.3) drilled water well** will be made, with depth of 25,00 m, diameter of 180 mm and other technical parameters. Also **water supply object (SO 01.4)** will be constructed, **pumping shaft (SO 01.5)** together with intake station will be made and the **pump pressure pipeline (SO 01.6)** and **soothing shaft (SO 01.7)** will be installed within water surface development.

Below there are given sketches and visualisation of water surface from Realisation Project Documentation for Building Permit (PD DSP).



Fig.1 The overall site plan together with the water surface in the central part of revitalised area.



Fig. 2 Visual sketch of the water surface built up within the Štrky area revitalisation. A circular footpath around the water surface can be seen as well.



Fig. 3 Another visual sketch of the water surface built up within the Štrky area revitalisation. Moreover, water and marshy vegetation to be planted within this revitalisation can be seen as well.

SO 02 ADJUSTMENTS OF AREA

SO 02.1 Vegetation and greenery

As mentioned before, within the Šrky area revitalisation 120 pcs. of broadleaved trees will be planted. Within planting itself every tree will be anchored with three stakes, will be protected mechanically against pests and mulching with wooden chips will be done as well.

Moreover, 835 pcs. of water and marshy vegetation will be planted around the water surface. A zone of water plants belongs to a depth between 40 - 70 cm and more under the water level; a zone of marshy vegetation belongs to a depth between 10 - 40 cm under the water level and a damp zone of water strands belongs to 0 - 10 cm under the water level.

Regarding the meadow greenery, meadow lawn of 4500 m² will be planted including the 1. mowing which will be done 6-8 weeks after the planting.

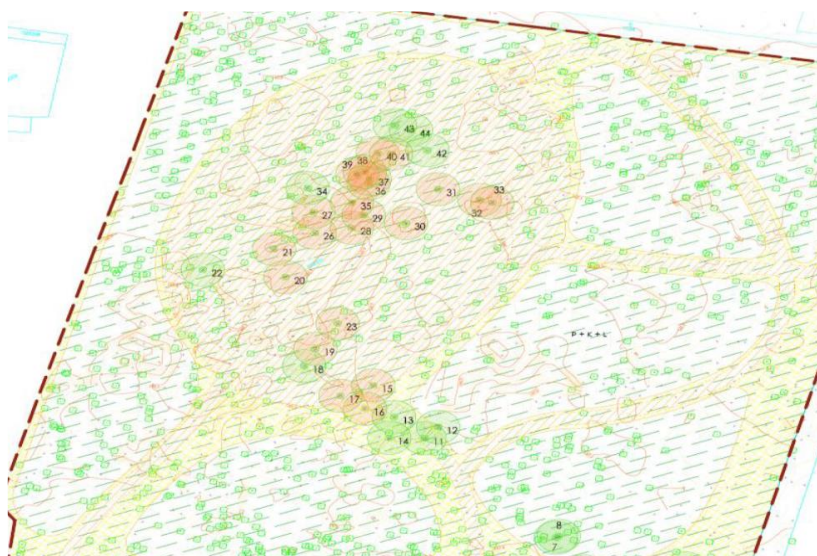


Fig. 4 Map of trees to be cut down in the revitalised area.

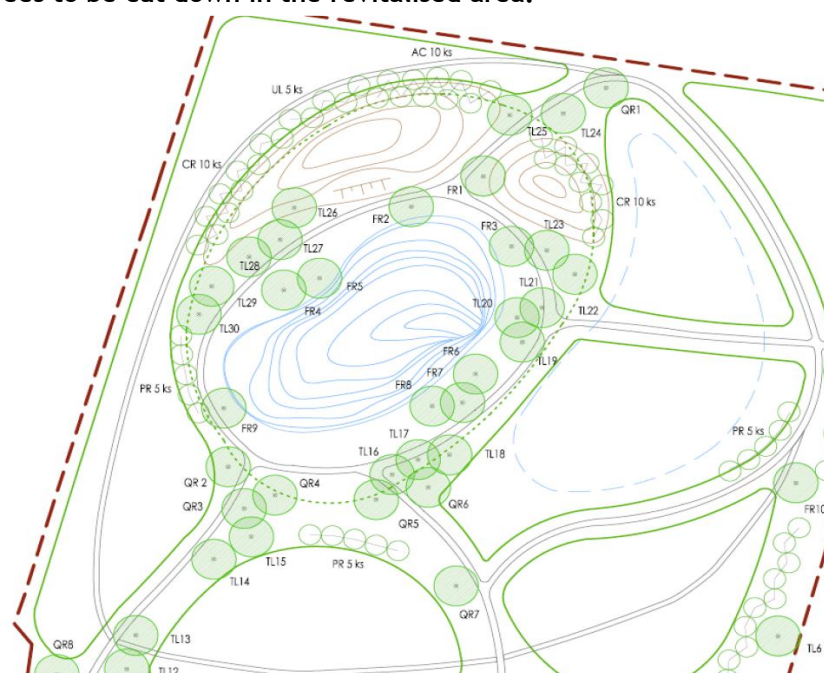


Fig. 5 Map of trees to be planted in the revitalised area.

SO 02.2 Unpaved footpaths

A network of unpaved footpaths of 1 065 m will be constructed from milled ballast. Out of the overall length of these footpaths 400 m of footpaths will be made of wooden chips. Nevertheless, during the revitalisation itself existing valuable trees will have to be bypassed and protected.

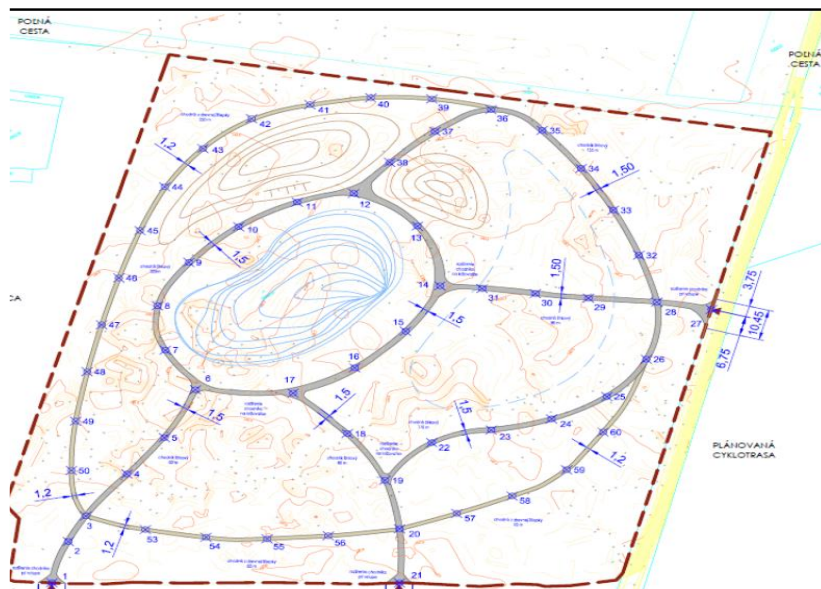


Fig. 6 Map of unpaved footpaths in the revitalised area.



Fig. 7 Visual sketch of the revitalised Štrky area with a glimpse on the unpaved footpath, the greenery as well as on the wooden bench (small architecture and mobiliari).

As mentioned previously, within revitalisation of the Štrky area the following several types of small landscape architecture and mobiliari will be installed: 5 pcs. of wooden benches with seat back; 3 pcs. of wooden benches without seat back placed around the stone grill; 1 wooden table placed under wooden resting shelter 3,5 x 4 x 2,5 m; 3 pcs. of dustbins with small shed; circular stone grill with diameter 120 cm and 100 cm high and wooden boxes for birds and bats. An exact placement of these boxes will be determined on the basis of ornitological survey, which should be done before restoration itself. All these items should be certified, with simple, natural design, made of wood and stone.

Below there are given examples of the above mentioned designed small architecture and mobiliari:



Fig. 8 Wooden bench with seat back.



Fig. 9 Wooden bench without seat back.



Fig. 10 Wooden benches and table.



Fig. 11 Wooden resting shelter.



Fig. 12 Dustbin with small shed.



Fig. 13 Info panel with small shed.



As mentioned before, within restoration of the Štrky area also public lighting will be installed composing of 5 pcs. of lights with light columns 5 m high. Parking lights with LED bulbs will be used. Also distributor and ground cable electricity distribution network will be constructed, serving not only for lighting but also for other electricity devices, e.g. water pumps.

G. Recapitulation

As described in previous parts of the report, the Štrky area represents an example of the “green brownfield”, in principle, mainly because of long term unmaintenance and underdevelopment at the city level (due to “traditional” lack of financial sources which had been allocated to investment priorities in the city residential area), together with an extensive deforestation accompanied with intensive agricultural and industrial activities and irresponsible behaviour of local residents dumping their municipal, biological and construction waste there.

However, since 2002 there had been the first attempts and efforts at the city level to start planning of remediation and sustainable use of this area.

Between 2002 and 2006 several feasibility studies mainly with regard to planned National Shooting Center were elaborated, together with EIA and dendrological and flora survey done in 2003 and 2005. Moreover, during 2015 and 2016 substantial part of the area was cleaned out from dumped waste and lots of invasive and ill trees and bushes were cut down.

One of the most important milestones in the development of this area was the CircUse project within which feasibility study on revitalisation of the Štrky natural park and its change to sporting and leisure zone was elaborated. This was the first study oriented specifically on the Štrky area and its revitalisation evaluating landscape, environmental and ecological potential of this area and drafting proposal of its remediation and sustainable use.

Based on this study another important step in the Štrky area revitalisation could have been done, i.e. elaboration of investment documentation including the Project Documentation for Spatial Decision (PD DÚR) and the Realisation Project Documentation for Building Permit (PD DSP), both elaborated within the LUMAT project. Based on this documentation the Spatial Decision was issued in 7/2017 and the issue of the Building Permit is expected in 11 - 12/2017. These two steps are inevitable for the revitalisation of the Štrky area itself - for procuring the revitalisation supplier and the revitalisation itself.

Within revitalisation of the Štrky area cofinanced from ERDF under the LUMAT project the artificial water surface will be constructed as a “heart” of the whole area, together with small artificial hill called “sunny hill”, moreover a network of unpaved footpaths, planting of broadleaved trees, meadow greenery, water and marshy vegetation, together with installation of small architecture and mobiliari, public lighting and distribution network will be developed.

Such complete revitalisation will increase environmental and ecological value of this area, originally biocentre of local importance. Moreover, it will change this area from a neglected and unkept place to attractive area open up for public offering possibilities for sport, relax and leisure activities.

In a broader context, revitalisation of the Štrky area will serve as a pilot and best practice example of a “green brownfield” revitalisation and will considerably contribute to an effort of Trnava City to



develop so called “green belt” around the city settled on flatty and windy lowland lacking natural - like places available for recreational activities of public and serving also as a “green lungs” of the city.