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INDUSTRIÁLNE ÚZEMIE AKO REZIDENČNÁ ZÓNA

THE INDUSTRIAL AREA AS A RESIDENTIAL ZONE.

Abstract

This paper deals with a gradual transformation of the industrial zone of approx. 13.5 ha, from which is gradually becoming a zone mostly with residential function. In the beginning of this paper I have processed partial view on how this area was established based and how it has developed over several political establishments in Slovakia, all based on available historical data and facts. This part is supplemented with period photo documentation and ortophoto map which nicely complete the overall view of the addressed territory. The core of the work describes the gradual transformation of the area from industrial zone to a zone intended for housing. The paper ends with summary table and map in which I have compiled based on available information financial requirements for the implementation of projects and expected financial results.

Introduction

Transformation of already urbanized areas became phenomenon of the new age where it is necessary to urbanize areas with residential buildings not only on the Greenfields around the suburb together with building staggered satellites with a complicated connection to the technical and transport infrastructure. The need of change of industrial zones (Brownfield's) consists clearly from the need to transform the purpose of use of these zones because of their location to the expanding city. In the stage of building the industrial zones these were mostly situated around the suburbs with sufficient distance from the city that it could avoid collisions of use. However, by progressive urbanization and by expansion these zones often became a wider midtown. This is what we call a functional conflict. These reasons put pressure on industrial sites which in conjunction with the complicated traffic together with gradual increase of restrictions by the authorities which induced by the owners of apartments in the near area resulted to the end of these sites and closure of production. Functionality of original industrial sites is often incompatible with housing, in contrast with the other functions such as administration, polyfunctionality etc, which can be defined as compatible with the residential functionality.

Historical development of the original area

Industrial complex was designed, constructed and used for the processing of limestone and manufacturing of Portland (and later even other types) Cement. The resort is located on the western edge of the village Stupava.

Factory use to manufacture products such as:

- Cements – special (spec. 500), single-base (JZC) 500 a 450; rapid-set (RVC); on-road, magnesium, Portland cement (PC) 450, 400 and 350; iron-Portland (ŽPC) 450, 350 a 325;

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- Fine limestone;
- Crushed stone;
- Quarry stone;
- Concrete products;
- Production of machine parts;

Until 1979 factory produced a total of:

- Nearly 6 million tons of clinker;
- More than 8 million tons of cement;
- More than 600,000 tons of ground limestone;
- More than 2 million pieces of concrete products;
- More than 250,000 tons of crushed stone;

As there is enough documents from the development and from the use of the site, enough data for each main material and technical change I didn't have a problem to describe the history of this factory.

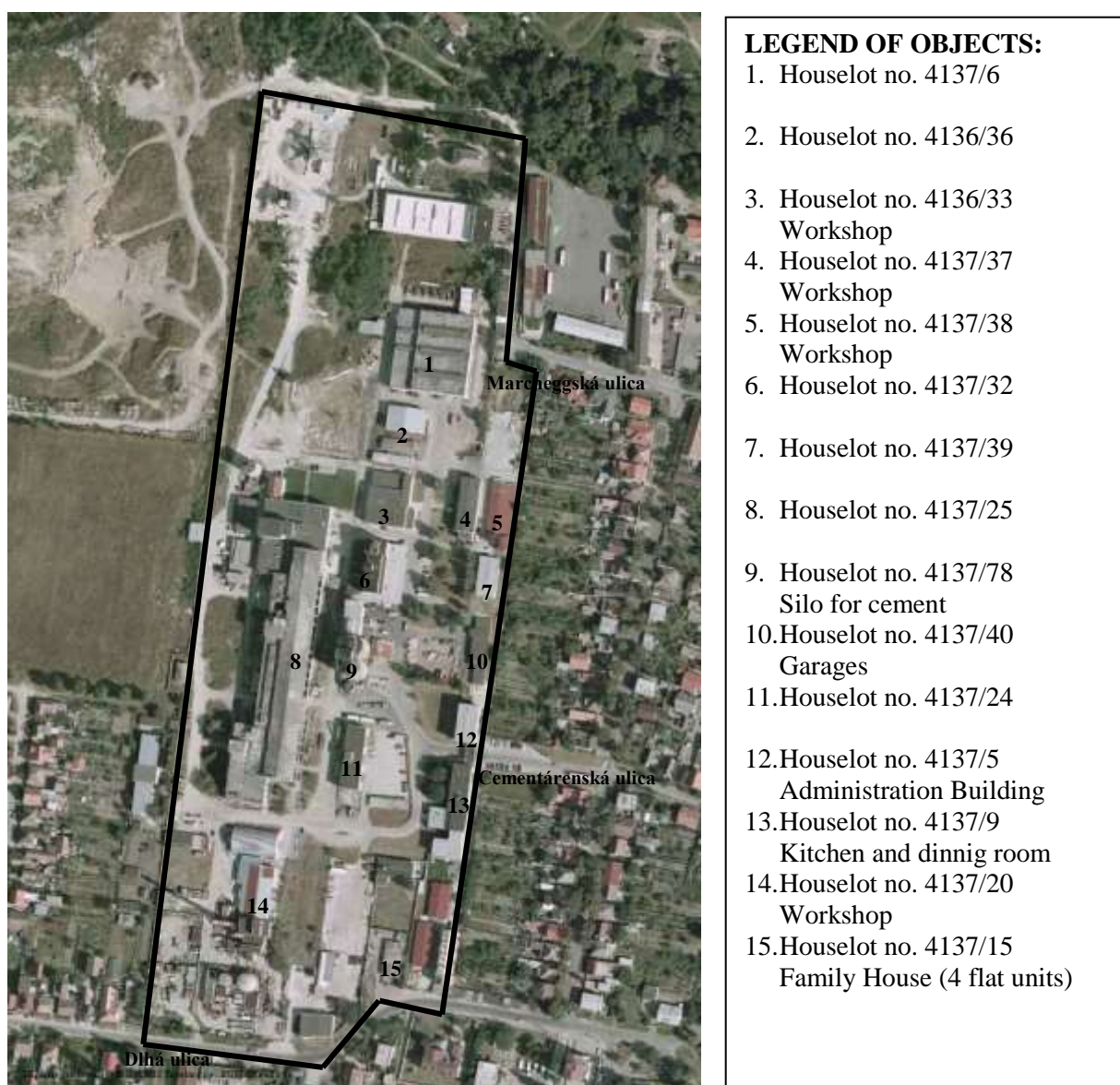


Fig. 1: Ortophoto map of area year 2005 – definition the purpose of the original building
(Source: GEODIS SLOVAKIA, s. r. o.)

Development of the Cement Factory from year 1945

Stupava Cement Factory was established in 1929 as a holding company under the name "Union, Portland cement factory, acc. co." Fundator was network group consisting of the Czech Union Bank in Prague, with Bratislava branch and Handlova Coal Mines with branch in Bratislava.[1]

Construction work began in 1929 based on assessment of the District Office in Bratislava from 12.12.1929. Issued under file number 20697/29. This way the trading and legal approval was granted together with the planning permission for the establishments of motorized cement manufacturing.[2]

Final inspection was conducted in 1932 on the 7th and 14th of December written out by the announcement of the District Office in Bratislava no. 18.154/1932 and 18.754/1932.

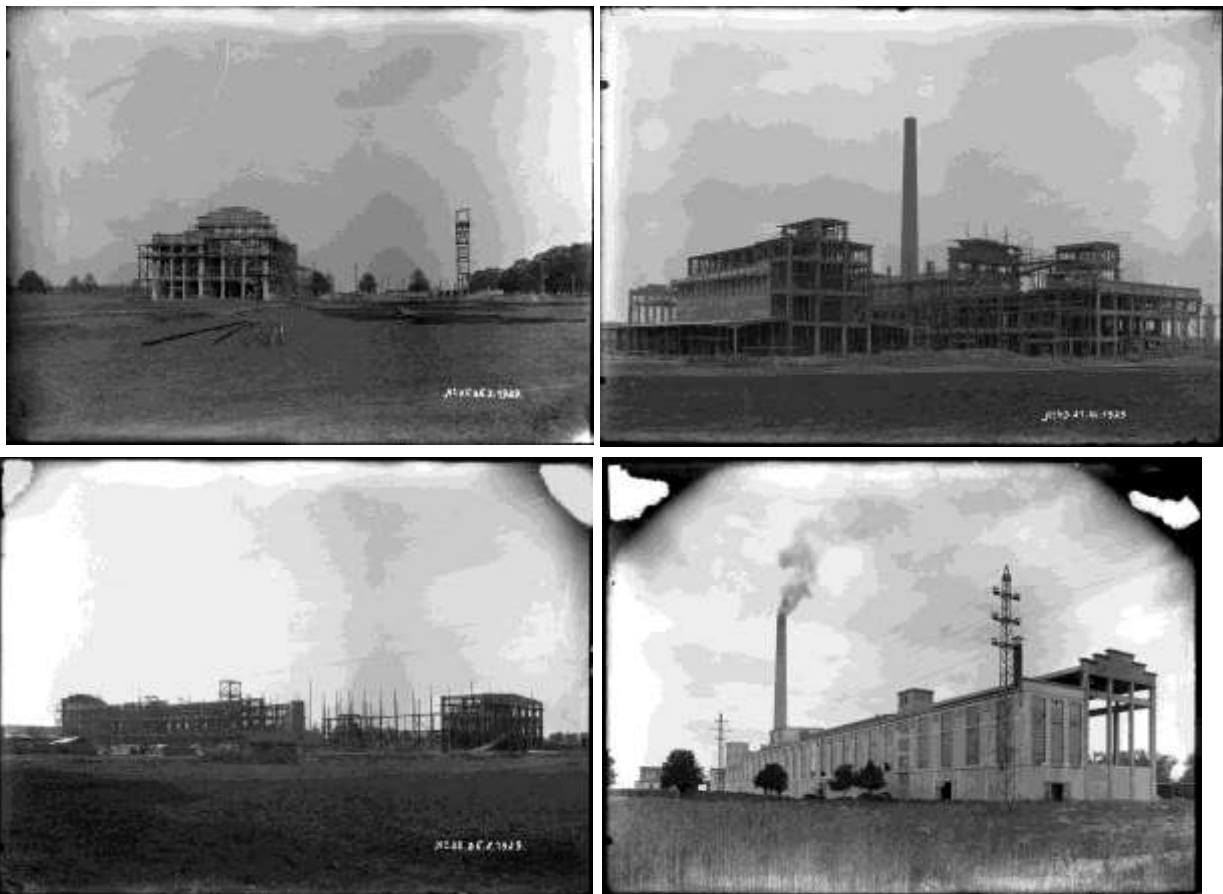


Fig. 2: Photo documentation of construction year 1929 - 1932

(Source: Collection of Peter Král, Stupava)

Limestone needed for the cement production was secured from the quarry under Pajstunsky Castle (old quarry) and later from year 1948 from the quarry Prepadle. The clay from the site called Žabáreň was sialitic component. Cement clinker was produced in a rotary kiln by the wet method.[3]



Fig. 3: Photo documentation of quarry under the Pajštún castle and Prepadle
(Source: Collection of Peter Král, Stupava)

This construction was very important for the village because it was the only factory in the area which was developed. People could see the significant opportunities to improve their social situation as at that time there was around 200 unemployed people in the village. However, the production didn't improve the employment as much as it was expected. First few years of production were within the period of severe economic crisis. During this period, production took place only in the summer months and in the winter employees had unpaid holidays. In 1933 in Germany the NSDAP came to power. Danger of war has become very real. This political situation had great impact on development of the cement production. Construction of the border fortifications required big amount of concrete therefore from year 1934 until 1937 there was increased production in the factory and it was no longer only seasonal affair. Turbulent political situation in years 1938-40 and the end of CSR didn't have good impact on the production, which resulted to massive decrease of production. From year 1940 because of the new war threat production was increasing once again. Year 1944 was an

important year of the Slovak National Uprising. Air raids didn't avoid even the factory and greatly damaged chimney and laboratory building.[3]

Development after 1945

After the liberation on the 4th of April 1945 they started with significant work to repair the factory and after they were finished on the 28th of October 1945 (the day of nationalization of industry) new production has begun. The cement factory was under National conduct under the PPO from 22nd of June 1945. Based on the decree about nationalization from the 28th of October 1945 all cement businesses in the Republic were included in nationalization. Ministry of Industry issued a deed under no. IV/4-243537/1946. Lift from the original old quarry beneath Pajštún castle to the Prepadle was extended in 1947 and new quarry was opened. After the extension the lift reached length of up to 10 km which was more than double to the original length. In 1950 construction of a new production line was launched, which meant another raw material mill, rotation kiln and cement mill. In 1954 production on a new line began. In years 1956 – 1960 the clinker burning was done with natural gas. In 1978 there was an organizational change when Stupava cement mill (until then an independent national enterprise) was included into the Zapadoslovenske cement mills and lime, National Corporation Rohoznik with whole production program.

Due to lack of suitable raw material in the quarry Prepadle, as well as the high energy intensity of the production (wet process) the production of cement in Stupava was closed down on the 31st of December 1983.[4]

Solution zone as „brownfields“[5]

Terminology "Brownfield" is taken from English language and it means old, not used or economically not enough used and uneconomic sites, which were made only for the purpose of industrial use or only as logistic zones, army objects, administrative and poly-functional sites etc. These types of buildings includes residential buildings as well. Literal translation is "brown field". The terminology in this field is still not entirely united. In general we can define the Brownfield's as area which was already urbanized a which we are not able to use for the original purpose.

Typological side of Brownfield we can define based on various criteria. In essence, all the criteria determines the economic demands therefore I take this criteria as the most rational one. Economic demand to restore the Brownfield directly determines its economic attractiveness which is than defined by some other factors such as price of the land, cost for clearing out environmental burden or when talking about the clearance it's the actual cost of realization. Attraction of Brownfield its increasing by the location in regards to the urbanized area. This is supported by the fact that for the future purpose it is possible to use already existing technical and transport infrastructure which means less costs for the investors against the project on Greenfields.

Deviation of the browfields in terms of economic attractiveness varies from country to country. In general, however, we can conclude that Brownfield's are divided by the intensity of its reconstruction, namely:

- Self Development (in USA - economically viable, in CZ - project with a zero balance) - whitefield;
- Passive Development (in USA - partially refundable, in CZ – projects with partial support) - greyfield;
- non-development (in USA irreclaimable, in CZ - non-commercial projects)

Based on the above definition and from available date we are able to define zone, which is the subject of this work as Self Development economically viable territory with zero balance which means without the need of investment of public's funds. The transformation and development of this area was actually caused by the market itself based on the high value of the land and low investments for modification of the area before it's used together with law cost which is needed for development of new transport and technical infrastructure.

Transformation of the area

Regulation of the area by Land Use Plan of Stupava

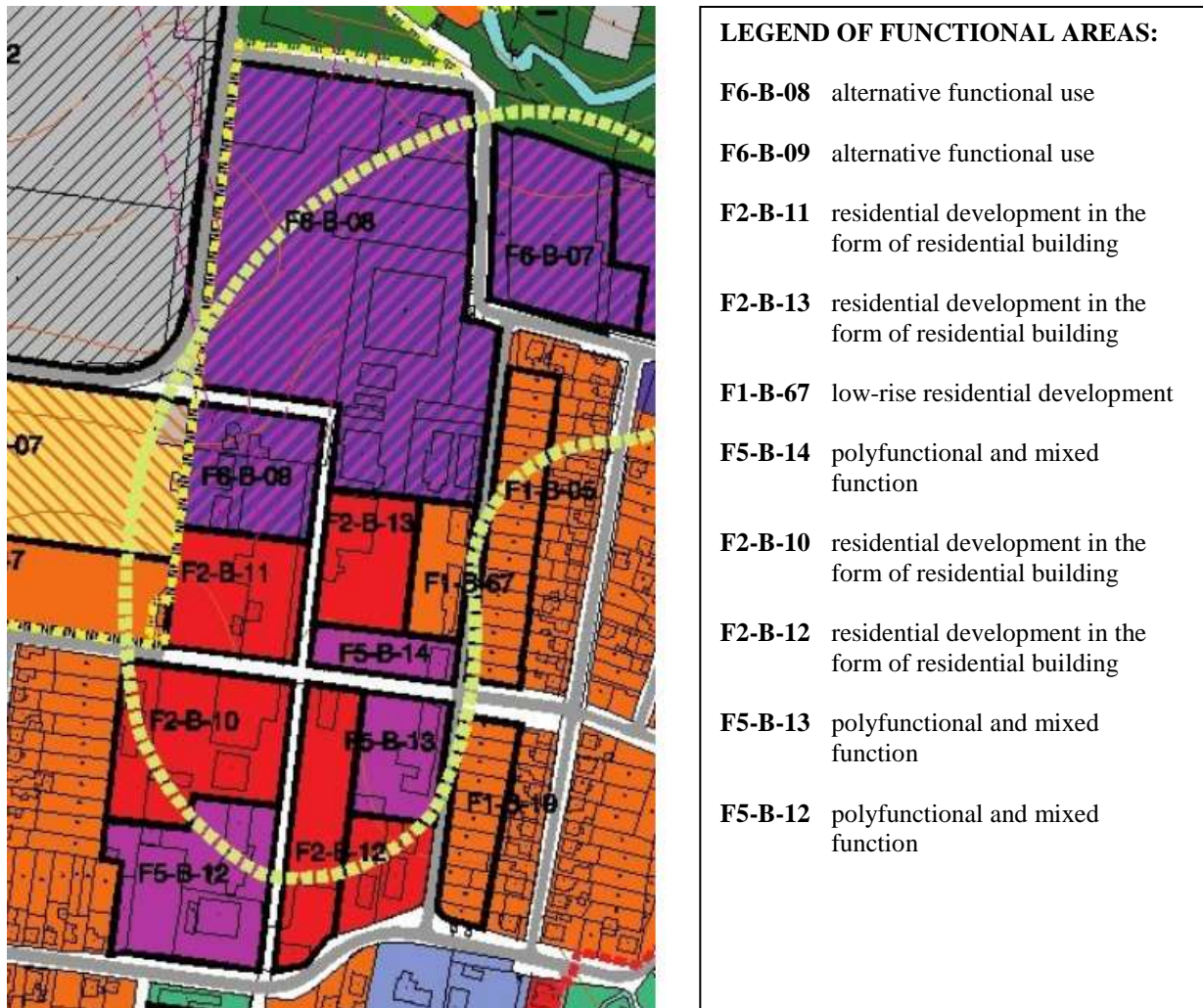


Fig. 4: Land Use Plan of Stupava, Comprehensive Urban Design, Land Use
(Source: www.stupava.sk)

Removal of the original buildings

As it was mentioned already on the 31st of December 1983 the primarily manufacturing of the cement has been closed down. Secondary production let us say the use of the complex consisted of technical and technological background for the whole group of CEVA Trencin. From 1992 new owner was CEVASERVIS, a.s., based in Stupava, Cementárska 15, IČO: 31 412 670. As the side didn't serve the initial purpose for which it was builded and specific structural-functional and technical solutions of individual buildings

didn't allow another functional use, the owner started with gradual elimination of the original buildings and subsequently with the sale of "cleared lands" to new investors.

Chronologically arranged decisions authorizing the removal of buildings:

- On the 19.07.2005 permission to remove the buildings has been issued ' old millrace "
- On the 10.10.2005 permission to remove the buildings has been issued "chimney of the former boiler house"
- On the 19.12.2005 permission to remove the buildings has been issued "residential house no.4"
- On the 10.05.2006 permission to remove the buildings has been issued "factory hall"
- On the 18.07.2006 permission to remove the buildings has been issued " boiler"
- On the 20.07.2005 permission to remove the buildings has been issued "gas station"
- On the 11.03.2008 permission to remove the buildings has been issued "bakery, extension"
- On the 11.03.2008 permission to remove the buildings has been issued "store"
- On the 28.04.2008 permission to remove the buildings has been issued "building"
- On the 14.07.2008 permission to remove the buildings has been issued "building"
- On the 14.07.2008 permission to remove the buildings has been issued "garage"

Implementation of the new buildings

Buildings, which could be used on another purpose (such as warehouse space, production facilities and administration) whereby the owner modified for that purpose. Most of these spaces were offered for rent (or to purchase) to the 3rd parties and some of these spaces were kept by the owner Cevaservis, a.s. for their own use – as headquarters.

On the 22.03.2005 Building Authority of Stupava issued permit ref: SOÚ-557/2004/Ko, based on which they allowed the construction of "Apartment building for short-term accommodation" (marked on Fig. 5: The overall situation as an object "A") on the land no. 4137/95, reg. „C“ KN, k.ú.: Stupava (after it was buileded it is on plot no.: 4137/95). As you can see from the name of the building the content of that decision was residential house for short-stay accommodation – hostel with capacity of 24 living units (each with an area of 30.50 square meters). In regards of the original area this object is situated on the southern part which is on the border with Dlha street, which also has the transport access to the object in question. Connection of the technological infrastructure is also from the Dlhá street. Maximum plan dimensions of the building is 35.20 x 10.20 m; no basement and it has 3 floors. Maximum height of the building is 10.20 meters from +0.000 (first floor). In the frame of the building there are 4 units for permanent accommodation and 20 units for short stay.

On the 04.08.2006 Building Authority of Stupava issued permit č.j.:SÚ-1853/2006/Pa, based on which they allowed the construction of „apartment building 24 units” (marked on Fig. 5: The overall situation as an object "B") on the lands no. 4137/15; 4137/100 a 4137/101, reg. „C“ KN, k.ú.: Stupava (after it was buileded it is on plot no.: 4137/155). As you can see from the name of the building the content of that decision was residential house with 24 units. In regards of the original area this object is situated on the southern part which is on the border with Dlha street, which also has the transport access to the object in question. Connection of the technological infrastructure is also from the Dlha street. The building has a maximum plan dimensions of 18.50 x 34.15 m, basement, 3 floor and 1 loft,. Maximum height of the building is 15.80 meters from +0.000 (first floor). In the frame of the building there are 7 2-bed flats, 12 3-bed flats and 5 4-bed flats.

On the 15.04.2008 Building Authority of Stupava issued permit č.j.:SÚ-2390/2008/Pa, based on which they allowed the construction of „apartment building 28 units”

(marked on Fig. 5: The overall situation as an object "C"). on the lands no. 4137/98 a 4137/111, reg. „C“ KN, k.ú.: Stupava. Stupava (after it was buileded it is on plot no.: 4137/178). As you can see from the name of the building the content of that decision was residential house with 28 units. In regards of the original area this object is situated behind of „apartment building 24 units“ (marked as object B) but we can still mark the situation of the building as on the south side. . Connection of the technological infrastructure is also from the Dlha street and it is along of the object B. in the north direction to the center of the site. Connection of the technological infrastructure is also from the Dlha street. The building has a maximum plan dimensions of 16,82 m od +0,000 (first floor). In the frame of the building there are 4 1-bed flats , 9 x 2-beds flats, 15 3-beds flats and 2 ateliers (non - residential premises).

On the 17.03.2008 Building Authority of Stupava issued permit no. č.j.:SÚ-241/2008/Šm, based on which they allowed the construction of "Residential complex Stupava – Agátky". The base of this decision was project documentation done by Ing. arch. Juraj Karásek which was handling most of the area of the old cement mill. (approx. 60% of the area) with detailed focus on the center of the whole complex.

- poly-functional residential buildings with a capacity of 112, 81, 52 and 14 residential units;
- 3 public parking garage with a capacity of 56, 88 and 71 parking spaces;
- complete transport and communications areas, parking lots, etc.;
- Complete public distribution of technical infrastructure (water, sewer, gas, substation, high voltage lines, NN management, street lighting);

Out of this project none of the above was built as big part of the land was sold, therefore new changes to the project were required. These changes are mentioned below.

On the 17.08.2004 Building Authority of Stupava issued permit "Multi-functional center Cevaservis a.s. Residential House". This project was designed to be on the land no. 4137/96; 4137/97 a 4137/102. Planning permission was issued on the 19.10.2005 by the Building Authority of Stupava under number SÚ-1477/2005/Šm. Flat Inspection permission was issued on the 17.07.2008 and on the 24.07.2008. Center consisted of three blocks of flats and in the decisions documents were identified as objects "A", "B" and "C". Building contains 19, 41 and 24 flat units. (marked on Fig. 5: The overall situation as an object "D")

On the 29.01.2010 Building Authority of Stupava issued permit for “residential complex Agátky” under no. SÚ-10148/09-10/Šm. This decision was only for some of the area, which was named as Agátky 1st Stage. The original project of Multi-functional center with 52 flat units has been changed to apartment building with 109 flat units. Also 1 out of 3 garage (with 71 parking spaces) has been deleted from the original project and which were partially replaced by some spaces in the basement of the new residential house. Based on the change in urban and architectural solutions of the construction transport and technical infrastructure had to be changed as well, however the original main traffic composition remained unchanged. Residential complex Agátky 1st stage has been authorized by decision č.j.:SÚ-5651/2010/Šm dated 29.04.2010 and flat inspection SÚ-11628/11-12/Pa has been issued on 23.01.2012. (marked on Fig. 5: The overall situation as an object "E").

On the 25.01.2012 Building Authority of Stupava issued permit for “residential complex Agátky” under no. č.j.:SÚ-12097/11-12/Šm. Same as above content of the decision was only for some part of the area, which was named as Agátky 2nd Stage. The original project of Multi-functional center with 14 flat units has been changed to apartment building with 49 flat units. Based on the change in urban and architectural solutions of the construction transport and technical infrastructure had to be changed as well, however the original main traffic composition remained unchanged. Residential complex Agátky 2nd stage has been

authorized by decision č.j.:SÚ-1566/2012/Šm dated 29.04.2010. The Flat inspection hasn't been issued yet. (marked on Fig. 5: The overall situation as an object "F").

At the time of processing and finalizing this work there was another permit in discussion - "residential complex Agátky". In the context of planning in Stupava this part is marked as a functional area F2-B-11. The original project of Multi-functional center with 81 flat units should be changed to 8 smaller residential houses with 12 flat units each. As a part of this project there should be also play ground for children as well as parking space with capacity of 153 parking slots. (marked on Fig. 5: The overall situation as an object "G").

Development of transport and technical infrastructure in the solution zone

Even though the most of the area is surrounded by existing buildings and together with the original urban technical and transport infrastructure; transformation of the original industrial zone area for residential housing led to several investments in the development of transport and technical infrastructure. In the dynamic traffic area this complex is very well done on regards of the transport and allows several connections to the existing local roads (with approx. 3-4 connection). It was still necessary to build its own traffic and technical connections within its own and nearby lands. Individual investments in the infrastructure are defined by each major aboveground facilities (housing) in Tab. 1: Balance table.

Conclusion

Data shown in Table no.1 –“Balance Table” show the main aim of this work in the best possible way. This table was prepared in order to show transparent presentation of the projects undertaken in this area. The table is divided into sections which define the basic parameters of individual buildings, section which defines the major cost items (their value was determined based on consultation with some investors and my own findings), part of earnings (the value of this item was taken as average value for all sites from real estate web pages). Even though the input cost data are indicative only we can say that this complex (even though it was urbanized before for another purpose) is great investment and it is entirely on the investor and the value added as to how quickly this project becomes different and how quickly he can expect the returns of this investment. Part of the Table is also a timeline which shows the time during which approximately 50 % of the original area has been transformed. As you can see from the previous progress the main trend in here is to change the functional area to a residential complex. Other parts are multifunctional therefore these are not as attractive to the investors because they would have to invest money to other developments than residential buildings. These parts are at the moment really hard to sale and this has negative impact on economic balance and, of course, it has negative impact on actual implementation and later sales. After construction is finalized and inspected these buildings are expected to growth the population in this area of approx. 800 to 900 people. Comparing to the original number of inhabitants we are looking at increase of approx. 1500 - 2000 people. Such a large number of population will require to build the amenities, commercial establishments and offices.

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References

- [1] Debrecký.V., 50 rokov, Stupavská Cementáreň, vydal Západoslovenské cementárne a vápenky, n. p. Rohožník
- [2] Autorský kolektív, 100 rokov výroby portlandského cementu na Slovensku a 30 rokov výrobného odboru Cementárne a vápenky Trenčín: Osveta, n. p., 1989.
- [3] Kadeřábková, B., Piecha, M. a kol., Brownfields. Jak vznikají a co s nimi, 1. Vydanie. Praha: C. H. Beck, 2009, ISBN 978-80-7400-123-9, 138 str.
- [4] Výmer Okresného úradu v Bratislave č. 20697/29 zo dňa 12. 12. 1929
- [5] Žiadosť Priemyselného (živnostenského) inšpektorátu, Bratislava o zaslanie povolovacích a schvaľovacích výmerov zo dňa 29. 09. 1937

Name of the project	BALANCE SHEET INPUT												
	basic parameters of buildings					cost for implementation building plan					return		
						transport infrastructure	technical infrastructure		main building (850€/m ²)	price of land (100€/m ²)	Sumarry (euro)	return from sales (1 400€/m ²)	profit (euro)
	communication and parking areas (70€/m ²)	water supply, sewerage, electricity, gas, street lighting (450€/bm)											
number of units (apartments) (ks)	number of parking spaces (ks)	Total area of used land - building site area (m ²)	built-up area of the main building (m ²)	useful area of the main building(m ²)									
2004 residential house for short-stay accommodation	24	30	1 002	402	1 000	24 500	16 200	850 000	100 200	990 900	1 400 000	409 100	
2005 multi-functional centrum Cevaservis a.s., Apartment Block "A", "B" a "C"	19/41/24	60	4 462	332/886	1425/2844/1866	157 290	69 300	5 214 750	446 200	5 887 540	8 589 000	2 701 460	
2006 Apartment Block 24 b.j.	24	38	1 544	583	2 500	63 000	13 500	2 125 000	154 400	2 355 900	3 500 000	1 144 100	
2008 Apartment Block 28 b.j.	28	49	2 049	673	2 800	98 000	45 000	2 380 000	204 900	2 727 900	3 920 000	1 192 100	
2010 residential complex Agátiky I. etapa	109	109	6 469	2 895	12 950	81 060	67 500	11 007 500	646 900	11 802 960	18 130 000	6 327 040	
2012 residential complex Agátiky II. etapa	49+7 apt.	47	4 700	1 292	5 654	35 000	22 500	4 805 900	470 000	5 333 400	7 915 600	2 582 200	
2013 HBV F2-B-11	96	153	8 500	8 x 285	8 663	126 000	99 000	7 363 550	850 000	8 438 550	12 128 200	3 689 650	
SUMMARY	421	486	28 726	5 845	39 702	584 850	333 000	33 746 700	2 872 600	37 537 150	55 582 800	18 045 650	

Tab. 1: Balance table
(Source: author)



Fig. 5: Land Use Plan of Stupava, Comprehensive Urban Design, Land Use (Source: author)