

## SMICHOV CITY – NORTH

### Text section – description and justification of proposed solution, related information

Design team:

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Landscaping	Lucie Vogelová, terra florida v.o.s.

The subject matter of the Competition is an Architectural Proposal of the north section of the "SMICHOV CITY" development. The proposal presents both sections in accordance with the tender terms – three blocks along street Radlická (blocks No. B01, B04 and B07) and two blocks by street Nádražní and in the centre of the site (blocks No. B05 and B06).

#### INTRODUCTION

The subject matter of the Smichov City – Sever competition is based on an existing urban study approved by the city of Prague. The district of Smichov had and has a city centre character, highlighted by the urban design linked to the scale and sizes of housing blocks in the neighbourhood. The new development planned on the land with the railways follows the logic of streets and city blocks which our design respects, with same variations which can add to the visibility and openness of the urban space.

#### 1. BREAKING THE BLOCKS

Our first consideration is to break the monotony of the city blocks by opening them up to the surrounding blocks. Hence, instead of having closed blocks and interior gardens, we open the streets towards the inside space and courtyard.

#### 2. PEDESTRIANS

A second consideration is to strengthen the pedestrian street of the project by permitting access for cars on the transversal street.

#### 3. GREEN, PEDESTRIANS, VEHICULAR NORTH/SOUTH AXIS

Three basic axes are defined: first one on the east side – an axis consisting of buildings in a park, second one – a vehicular axis to allow for access to parking garages, and third one – a pedestrian, commercial street in the project core.

#### 4. OFFICE LEASABILITY

The office buildings are situated on the periphery of the project, with easy access and great visibility from the main exterior street. The office buildings are designed to accommodate large open-space rooms but also allow for division into offices of diverse sizes on each floor. They are very open to allow as much light as possible to their users.

#### 5. VARIED ARCHITECTURE

The apartment buildings are not designed as city blocks, but as collections of houses of different colours and sizes, all compatible but offering variety to animate the city space. With loggias, terraces and the attic, their vertical composition will add to the feeling of home, coherent with Prague scale.

#### DESCRIPTION OF PROPOSAL

The proposal keeps street lines defined in the Zone Regulation Plan. In section I two blocks along street Radlická were merged into a single unit. These merged blocks can be built in two phases. On Levels 1-3 a passage way is planned in the merged block, corresponding to the original division of the blocks.

The main pedestrian boulevard reaches out into the blocks and creates a quiet city park space with restricted traffic. Dead-end perpendicular streets with shortened driving surfaces (when compared with the original design – requirements) are planned between street Stroupežnického and Radlická, in order to calm down this space between the buildings as much as possible, keep it away off city traffic and utilise the space with city park character to the highest possible degree.

The proposal respects local key hubs: connection of the new development to existing and newly proposed roads and their specific features – a building by the noisy artery road Radlická, the inner single-purpose road, the pedestrian boulevard, historical axis of street Nádražní and the corner design – both in the parterre and on further storeys above ground. The new housing and office development will co-shape the existing face of Smichov and the buildings proposed will not exceed the height of the existing development – the so-called "shell curve" of the roof plane corresponds with local applicable regulations. No local landmarks are foreseen. The aim of our architecture is to maximise the Gross Floor Area for the residential buildings. Residential buildings are not proposed in places where existing acoustic norms do not allow so – by frequented roads Radlická and Nádražní.

The parterres of the residential buildings include garage driveways, space for retail and services and space for civic amenities. The parterre of the residential buildings ensures access from main entrances to the reception (planned in every building) from the streets and the inner block. There are also secondary entrances bypassing the reception. Due to the problematic utilisation of the unattractive parterre sections connecting to the side streets with retail, the apartments on the ground floor of the residential blocks face the inner blocks and connect to the terrain, so they offer a sufficient distance from adjacent pedestrian walkways. These apartment units can be changed into leasable space. Space for retail and services is foreseen in the parterres of the office buildings.

The proposal respects the terms and conditions defined in the Prague Building Code (except for the requirement regarding the number of parking places which matches the tender terms). The proposal does not utilise the overhang of street lines in the Zone Regulation Plan. The design achieves a modified Gross Floor Area than what is defined in the Zone Regulation Plan, with a total difference of up to +- 10%.

The green area defined in the Zone Regulation Plan for the different blocks was not reached because the required number of parking places would not be accommodated. Given the design efficiency, underground storeys go down to only basement 3. The entire residential block always has a basement 2 and 3. Basement level 1 includes soil, allowing plants to reach their full size. These green areas cannot be counted in the Green Coefficient as lawn and planting on natural terrain, but they actually constitute the lawn and planting required and create a sufficient attractive parterre with full-grown plants.

The office building design allows phase-by-phase construction in required Gross Floor Area intervals (6 000 to 12 000 sq m of GFA). Communication hubs allow the different storeys to be split into independent units with an approximate area of 250 sq m – see the graphics of this division in the design. Our proposed division of the storeys – central communication hub with a lobby in front of lifts, with three to four entrances to tenant units – brings great variability in merging and dividing the tenant space. The design achieves from 85% to 87% efficiency of Gross Floor Area related to Net Floor Area. Thanks to the module width and depth of office space, the office buildings allow maximum utilisation of daylight. Controlled access of employees and visitors from the garages to the reception is provided on a vertical walkway, divided on the reception level. Block B01 is an exception – here access control will be handled by a smart access system. The building design allows open-space offices or closed office units and minimises the portion of shared space. From the structural point of view, elements supporting the building frame are minimised and the ceiling slab does not restrict office space usability (head-less columns). On Level 1 the clearance is increased. The clearance in offices and corridors is 3.00 m, office depth is 5.5 - 6.5 m and offices are divided by a 1.35m module. The design foresees storage rooms on basement storeys or where room clearance in illuminated offices is insufficient. Technical systems, equipment and machine rooms are based on basement storeys or on the roof (including a back-up power generator). A canteen for employees and a restaurant in the parterre are planned in building B01. In other buildings, these can be accommodated in the retail and service space.

No large-format illuminated billboards are foreseen on the buildings for architectural reasons. They would disturb local city landscape. Instead, the design incorporates small advertisement panels in the building facades above the parterre level.

The residential buildings belong to the higher housing segment – from the top, receding storeys the architectural proposal takes advantage of the view of the Prague Castle, Vysehrad and surrounding green hills. Residential buildings shall be built in blocks counting 27, 66, 77, 78, 125 and 145 apartments. The architectural proposal brings the new development in line with original, local block development: the blocks consists of multiple residential buildings differentiated by different facade and mass design. With the exception of ground floors and some studios, all apartments have loggias. The loggias are incorporated into the facades in a way ensuring they match the surrounding city landscape. The apartments allow future buyers to merge two adjacent units into larger apartments. The design does not include studios (commercial units). We expect to meet acoustic norms. The living room is connected with the kitchenette and the rooms have the minimum sizes stipulated by law. Storage spaces outside the apartments are situated on the basement storeys in separate units and partly in areas connecting to the parking place belonging to the apartment. Joint equipment of the building is concentrated on the ground floor, connecting to entrances and the reception. The residential buildings are low-energy buildings of higher standard – thermal insulation, possibility of heat recovery, etc. The parking equipment corresponds to the tender terms. Garage driveways are shared by all

residents within one block. The buildings have a sufficient number of visitor parking places. Entrances to residential buildings are via a reception that will be shared by several buildings. The facade architecture demonstrates the diversity of the different buildings within one block and aims at preserving the character of a developed city.

The proposal allows the construction to be performed phase by phase. The blocks will be divided into buildings (houses), so that phase construction will be possible. Block B01 (which does not meet the phase requirement of 15 000 sq m) can be built in two phases, if necessary. Other blocks meet the requirement of approx. 200 apartments and approx. 15 000 sq m of Gross Floor Area. Construction phasing is shown on panel 1 in a separate scheme. The commercial and residential functions are vertically divided. Full division into blocks on the storeys above ground is ensured. Shared underground storeys are available for the individual blocks. Different functions will be separated in them depending on the final situation.

#### STRUCTURAL SYSTEM

The layout of all buildings (residential and non-residential) is based on a low-cost structural system: basic modulation of 8.1m and a reinforced concrete frame in the entire building (on the storeys above and under ground, connecting to parking places).

#### ACOUSTICS

The buildings are situated between streets Radlická and Nádražní, highly frequented roads. This leads to higher acoustic pressure values due to traffic noise. Therefore, office buildings are concentrated along these roads. The office buildings therefore screen the residential blocks off the noise. Due to the total number of parking places, higher noise levels are possible from vehicles servicing the new buildings also outside streets Nádražní and Radlická, e.g. in street Stroupežnického. These noise levels can only be determined in an Acoustics Study. If windows of the residential buildings with an attenuation index of  $R_w=38$  to 43 dB were required due to the increased noise levels outdoors, natural air intake must be provided in the residential rooms affected. This would be handled by acoustically insulated window slits or glazed loggias with 2m depth.

Noise levels: Street Nádražní – 55-60 dB at night, street Radlická – 65 dB at night; required values: for apartments – 30 dB at night, 40 dB at day (measured inside, approx. 1 m from the facade), for offices – 50 dB at day (measured inside, approx. 1 m from the facade). There will be increased acoustic demands on the residential building facade – 38 dB (for street Nádražní) a 43 dB (for street Radlická) – it is likely that acoustic windows, not allowing for air intake, will have to be installed. As a result, a recovery unit or ventilation slit in the window sill will have to be installed. The exact scope of these measures will be specified on higher design levels based on a detailed evaluation in the Acoustics Study. Special measures will be required for apartments above underground garage driveways. No such measures will be probably required for office buildings. Roof-top systems and equipment will be sound insulated and/or screened off with an acoustic screen.

#### LIGHTING/SUN EXPOSURE

The Prague Building Code does not specify any requirements regarding sunlight in apartments. All apartments will reach required sunlight levels – the size of windows and positions and depths of loggias accommodate these requirements.

#### THERMAL SYSTEM

When considering investor's requirements, we propose meeting proven standards but placing the building higher and taking further higher-standard measures. The idea to build the basic level to meet applicable norms and obtain certification (e.g. LEED) with minimum investment costs is the standard solution. Since the very beginning, our proposal aims at minimising energy demands by offering a comfortable inner environment and maximum space utilisation.

The directions our buildings face are the best possible directions to utilise sunlight, shading and natural light. The office building with the highest energy demands (north-west side of the site) faces – lengthwise – the east-west and has the maximum possible portion of glazed surfaces facing the north. For office blocks facing the north-south, partial shading with existing and new buildings is foreseen.

The global facade design combines solid and glass sections. The glass surfaces, facade materials and shading elements (predominantly exterior blinds) will control solar heat absorption.

Other "green" measures include an interaction between building systems and house installation components, covered by BMS. The site is not a champion in offering access to renewable energy sources – e.g. ground water or geothermal energy. The most desirable solution for this site is to connect to local energy sources including remote source of heat. The green measures introduced in our proposal include the reduction of solar gains to a minimum thanks to a correct arrangement of solid and glazed facade sections, correct window sill height and shading elements, Heating of surfaces is minimised thanks to the use of reflective materials. Higher design levels will introduce a proposal of green roofs to absorb rain water and use natural or modified vegetation species without the need for additional irrigation. The standard solution is to use materials that require less volatile organic substances and the usage of local sources of materials wherever possible.

#### Office buildings:

Air-handling system: All indoor areas will be equipped with a forced ventilation system. Waste heat will be recovered. Negative pressure ventilation is planned for toilets, small kitchens and storage rooms with ancillary areas. Ventilation savings in unoccupied areas must be an essential element of the ventilation policy.

Heating and cooling: Offices will be heated with radiators and cooled with active cooling beams or fan-coil units. Chillers for water cooling, with a water cooled condenser and screw compressors for machine room installation, are the source of cool. The unit will be cooled with water by using roof-top dry chillers (a cooling tower is an alternative to dry chillers). A heat exchanger will be situated in the cooling room and integrated into the cooling water circuit for the purposes of free cooling during the winter period.

Sanitary installations: Savings of drinking water consumption are foreseen (e.g. water-free urinals and water-saving fittings and taps). The rain water management and utilisation for building operation will be considered in next design stages.

Wiring: lighting control system coupled to external light, daytime and current occupation of the premises, use of energy-saving light sources, etc.

#### Residential buildings:

Heat recovery is planned for the residential buildings, with the possibility of individual control in every apartment. (Heat recovery is profitable not only for energy savings, but also to reduce noise from outdoors).

#### LANDSCAPING

The Landscaping Concept aims at creating a natural environment with clear divisions between pedestrian routes and relaxation zones situated in inner blocks. Even though there is a cellar underneath, the relaxation zones create the illusion of solitaire buildings in a cozy, park environment. The substrate height in inner blocks on the structures of underground storeys is up to 2 m, which will ensure unproblematic vegetation growth. The broad streets allow alleys of full-grown trees (suitable for the city) to edge pedestrian walkways – even from both sides on the main boulevard. They give the parterre a finer scale and create a more intimate environment. Adjacent semi-open inner blocks will offer compact green rest zones with a "bush floor", also in the atrium of building B01.

#### TRAFFIC SOLUTION

Every building offers its own roofed parking place on three storeys under ground. The mass garages are connected to external roads with a two-lane ramp with traffic in both directions. The minimum ramp width is 5 m. The traffic organisation system in the mass garages is fully subordinated to proposed layout. The parking places inside the garage are situated perpendicularly to the middle road of 6.0m width. Traffic on inner roads can flow in both directions. The storeys are connected by ramps with 15% inclination and rounded vertical curves with  $R = 15$  and 20 m. The underground garages include a bar and reading device to serve the vehicles entering and exiting the garages. The bar system will be always situated at the ramp end to prevent congestion on adjacent servicing roads. Perpendicular parking bays of 2.7 x 5.0 m for passenger cars prevail in the mass garage. Their size meets the basic parameters defined in ČSN 73658 for class 1a passenger cars (1.75 x 4.75 m). The number of parking places required was defined in the tender terms. The parking capacity in the building is summarised in the table below. As stipulated in the decree of the Regional Development Ministry of the Czech Republic MMR ČR No. 398/2009 coll. on general technical requirements for barrier-free use of buildings, a corresponding number of parking bays for the heavily disabled and vehicles transporting a baby pram will be reserved.

BLOCK	B 01	B 04	B 07	B 05	B 06
Offices (office area) / parking	7 548 m <sup>2</sup> / 302	3 093 m <sup>2</sup> / 124	3 093 m <sup>2</sup> / 124	-	2 425 m <sup>2</sup> / 97
Services, retail (utility area) / parking	1 002 m <sup>2</sup> / 34	1 145 m <sup>2</sup> / 39	1 141 m <sup>2</sup> / 38	1 025 m <sup>2</sup> / 34	1 514 m <sup>2</sup> / 51
Catering (service area) / parking	220 m <sup>2</sup> / 22	-	-	-	-
Apartments – studios / parking	-	15 flats / 8	12 flats / 6	45 flats / 23	29 flats / 15
Apartments – up to 100 m <sup>2</sup> / parking	-	61 flats / 61	52 flats / 52	185 flats / 185	115 flats / 115
Apartments – over 100 m <sup>2</sup> / parking	-	1 flat / 2	2 flats / 4	-	1 flat / 2
Visitor parking / parking	-	77 flats / 8	66 flats / 7	230 flats / 23	145 flats / 15
Total need	358	242	231	265	295
Total proposal (indoor spaces)	360	242	233	265	300

Note: "Office space" for the calculation of required parking capacity means a surface with such parameters that meet all effective statutory requirements based on which a permanent office workplace can be established.

#### FIRE SAFETY SOLUTION

The Premises with the different buildings were assessed for compliance with basic fire safety principles, particularly in accordance with applicable fire codes (ČSN norms of series 7308xx) with reference to applicable legislation. Evaluated were the positions of buildings (the buildings must be made only of a non-flammable structural system), the context of driveways, fire rescue areas, availability of water sources for fire fighting purposes as well as sufficient distances between buildings constituting the so-called "fire safety distances". Evaluated were also the layouts and their feasibility regarding fire sectors, sufficient number and types of emergency escape routes, evacuation lifts and essential fire safety equipment of different types. After evaluating the aspects stated above, we can state that the proposal of the office and residential buildings with essential technical rooms and a mass underground garage is feasible when considering its compliance with applicable fire safety principles and legislation.



SITUATION PLAN - 1/2000e

# SMICHOV CITY SEVER

The object of the competition Smichov City - Sever, is based on an existing urbanistic study approved by the city of Prague. The district of Smichov had and has a vocation of city center which is reinforced by an urban design very linked to the scale and the block sizes of the existing neighbourhood. The new development proposed on the railways land follows a logic of streets and city blocks which our design respects with same variations which can add to the visibility and openness of the urban space.

**1. Breaking the blocks**  
Our first consideration is to break the monotony of the city blocks by opening them to the surrounding ones. Hence, instead of having closed blocks and interior gardens, we open the streets onto the inside spaces.

**2. Pedestrian**  
A second consideration is to reinforce the pedestrian street of the project, by permitting the access of cars on the transversal street.

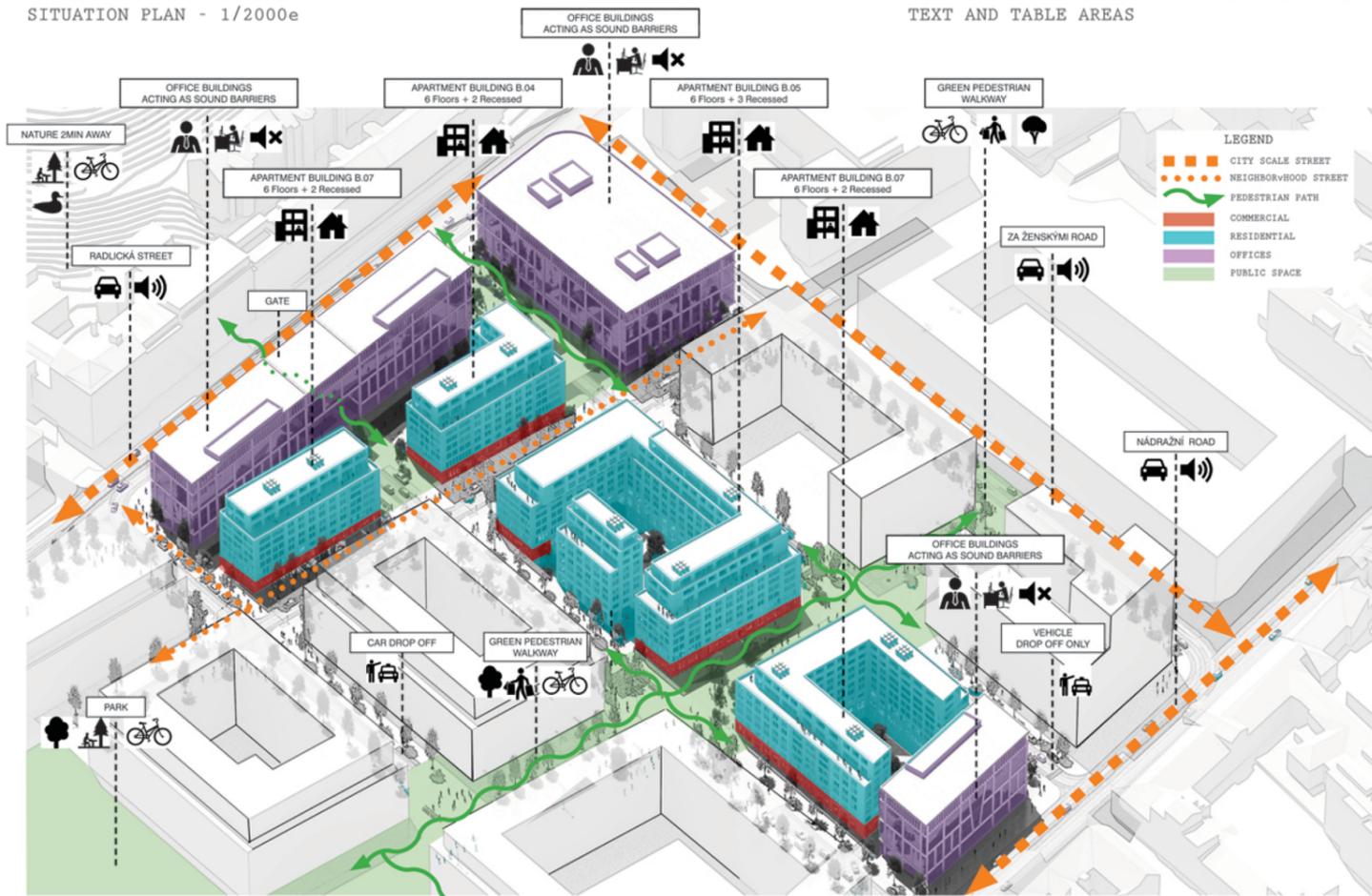
**3. Green, pedestrian, vehicular north/south axis**  
Three basic axes are defined: one on the east side is an axis of buildings in a park, another is a vehicular axis to allow for access to parking garages, another is the pedestrian commercial street on the center of the projects.

**4. Leasability offices**  
The office buildings are situated on the periphery of the project, with an easy access and a great visibility from the main exterior street. The office buildings are designed to accommodate large plates and allow for divisions in different offices on each floor. They are very open to allow greatest possible light for their users.

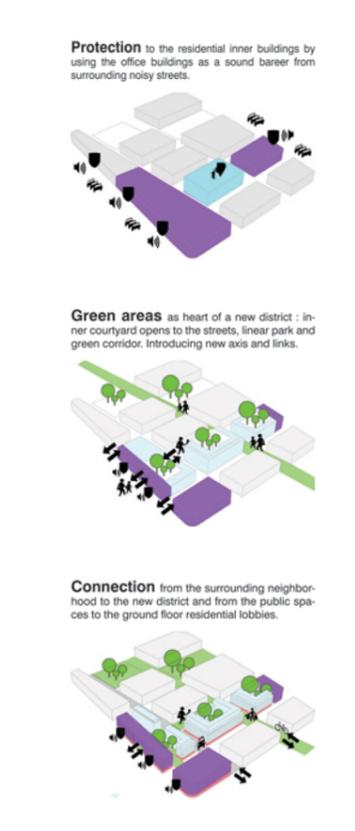
**5. Varied Architecture**  
The apartment buildings are designed not as city blocks but as collections of houses of different colors and sizes, all compatible but offering variety, to animate the city space. Balconies, terraces and the attic, vertical composition will add the feeling of a domestic scale, coherent with Prague scale.

BALANCE OF AREAS, NO. OF FLATS AND PARKING														
	NET INTERNAL AREAS				GROSS EXTERNAL AREA		GREENARY		NUMBER OF FLATS			PARKING No. of indoor places		
	RETAIL SERVICES	OFFICES	APARTMENTS	TOTAL NET PROPOSAL	PROPOSAL	REQUIRED	PROPOSAL	REQUIRED	Studio	1B flat	2B flat		3B flat	
	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>	M <sup>2</sup>						
AREA I.	BLOCK B01	1502	12 648	-	14 150	16 889	15 360	534	1166	-	-	-	-	360
	BLOCK B04	1145	5254	4235	10 634	14 116	15 272	980	1000	15 x	38 x	16 x	8 x	242
	BLOCK B07	1141	5239	3571	9951	13 016	13 101	579	662	12 x	34 x	12 x	8 x	233
	<b>TOTAL</b>	<b>3788</b>	<b>23 141</b>	<b>7806</b>	<b>34 735</b>	<b>44 021</b>	<b>43 733</b>	<b>2093</b>	<b>2828</b>					<b>835</b>
AREA II.	BLOCK B05	1025	-	12 356	13 381	20 749	21 679	1068	1107	45 x	116 x	46 x	23 x	265
	BLOCK B06	1514	4635	7920	14 069	19 739	19 984	627	742	29 x	73 x	30 x	13 x	300
	<b>TOTAL</b>	<b>2539</b>	<b>4635</b>	<b>20 276</b>	<b>27 450</b>	<b>40 488</b>	<b>41 663</b>	<b>1695</b>	<b>1849</b>					<b>565</b>

TEXT AND TABLE AREAS



NEW NEIGHBOURHOOD DEVELOPMENT



CONCEPT SCHEME

**Breaks** the monotony of the city blocks by opening them to the surrounding ones. Inner courtyard opens to the district. Linear park linking blocks to city.



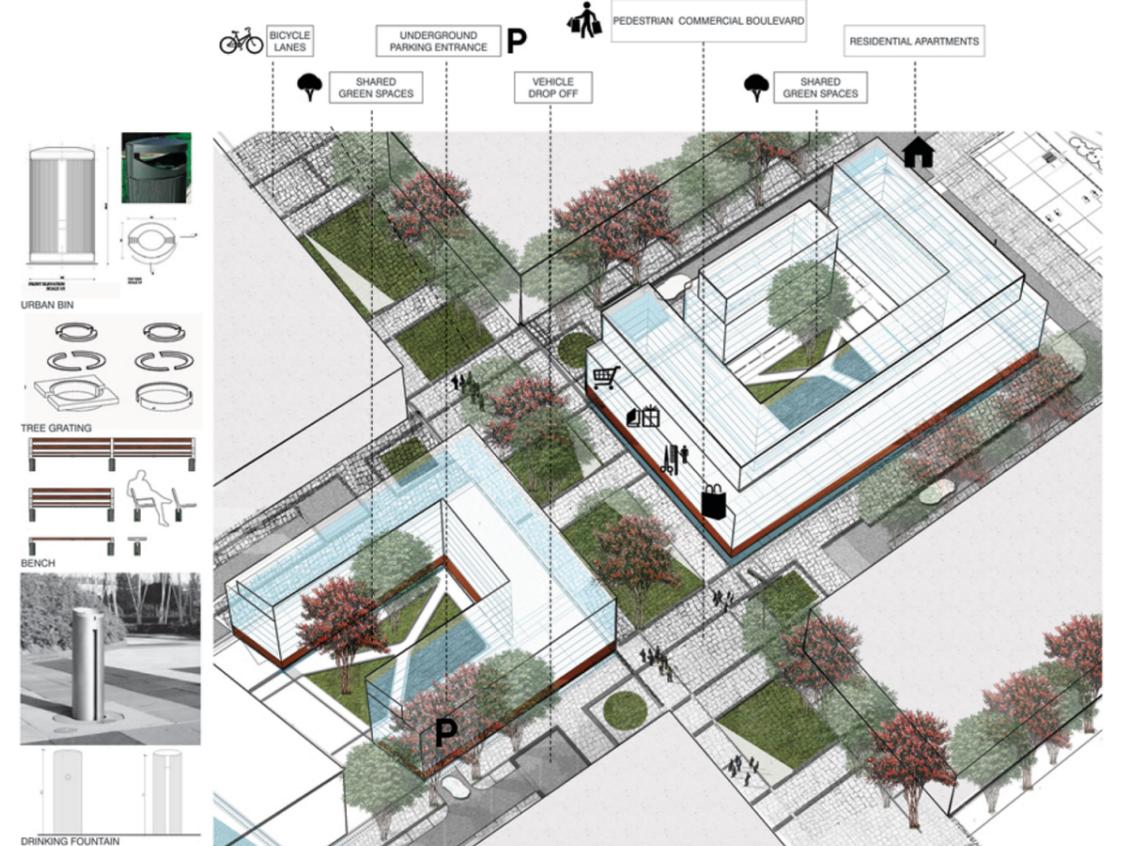
**Public space** and semi-public space, to connect blocks with streetscape. A pedestrian commercial street on the center of the projects link the new district with the surrounding.



**Phasing.** Possibility to develop the district by phases: residential and offices in separate buildings.



ANALYSIS DIAGRAMS



STREETSCAPE ZOOM



NORTHWEST BIRD'S EYE PERSPECTIVE



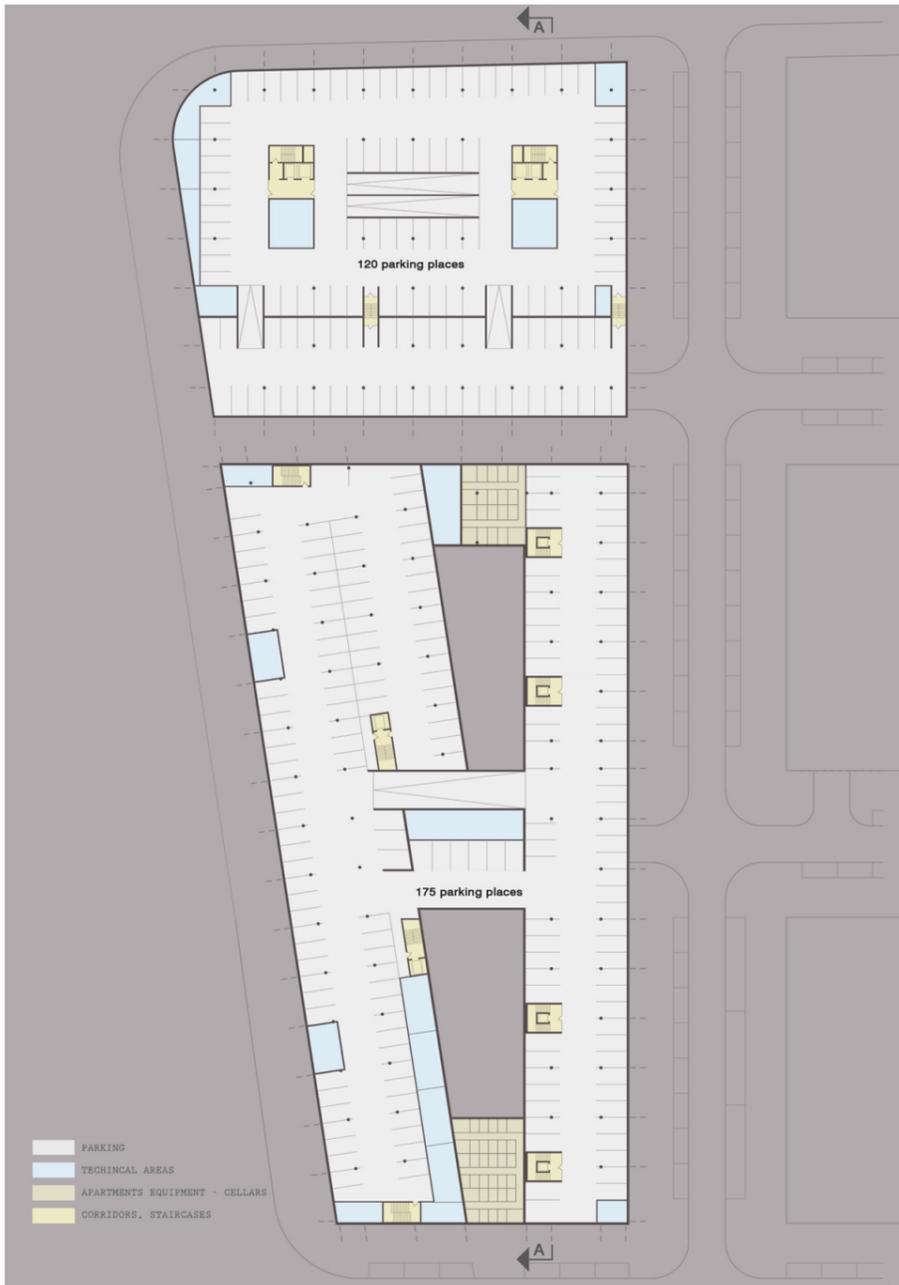
SOUTHEAST BIRD'S EYE PERSPECTIVE



SOUTHWEST BIRD'S EYE PERSPECTIVE



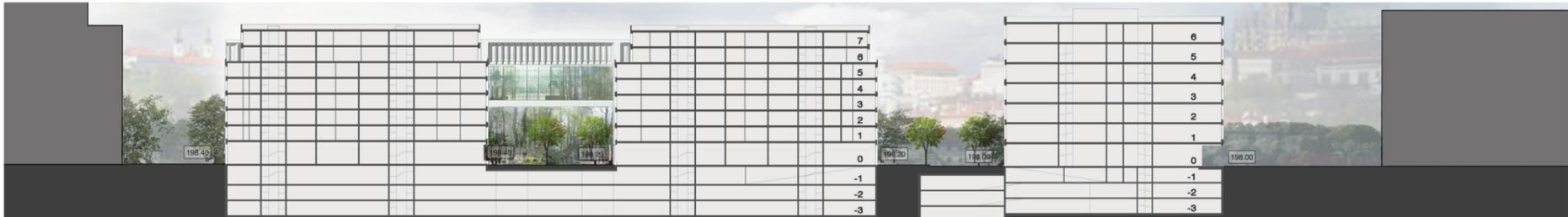
PERSPECTIVE FROM RADLICKÁ STREET



TYPICAL UNDERGROUND FLOOR PLAN [B01-B04-B07] - 1/500e



GROUND FLOOR PLAN [B01-B04-B07] - 1/500e



LONGITUDINAL SECTION AA' - 1/500e



STOUPEŽNICKÉHO STREET ELEVATION - 1/500e



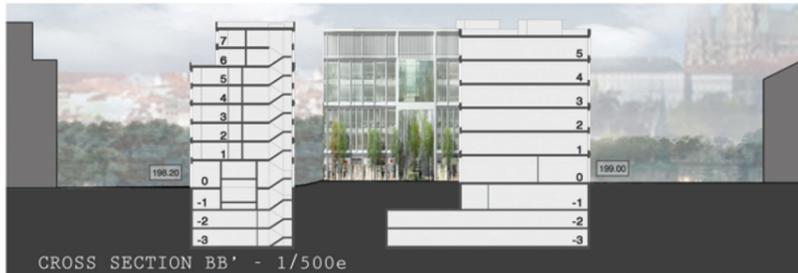
PERSPECTIVE FROM STROUPEŽNICKÉHO STREET



OFFICES - 1st FLOOR  
APARTMENTS - TYPICAL FLOOR  
[B01-B04-B07] - 1/500e

OFFICES - TYPICAL FLOOR (2nd - 5th)  
APARTMENTS - 1st PENTHOUSE FLOOR  
[B01-B04-B07] - 1/500e

OFFICES - 6th FLOOR  
APARTMENTS - LAST PENTHOUSE FLOOR  
[B01-B04-B07] - 1/500e



CROSS SECTION BB' - 1/500e



NA VALENTÝNCE STREET SECTION CC' - 1/500e



NA KNÍŽECÍ ELEVATION - 1/500e



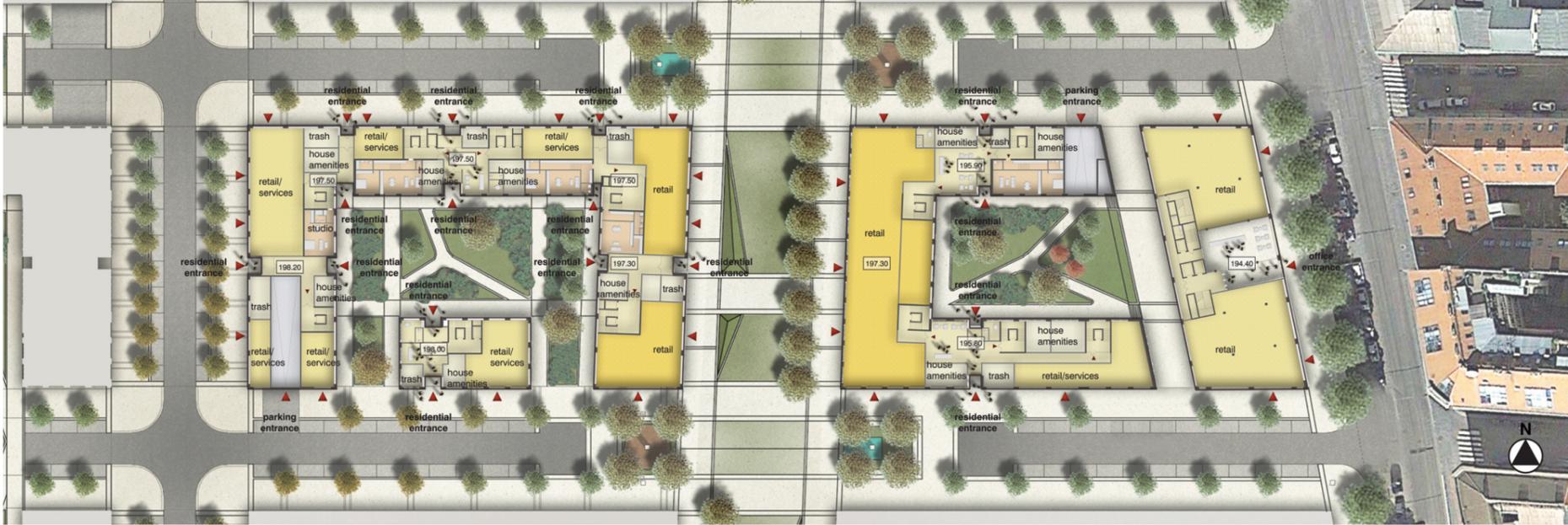
PIVOVARSKÁ STREET ELEVATION - 1/500e



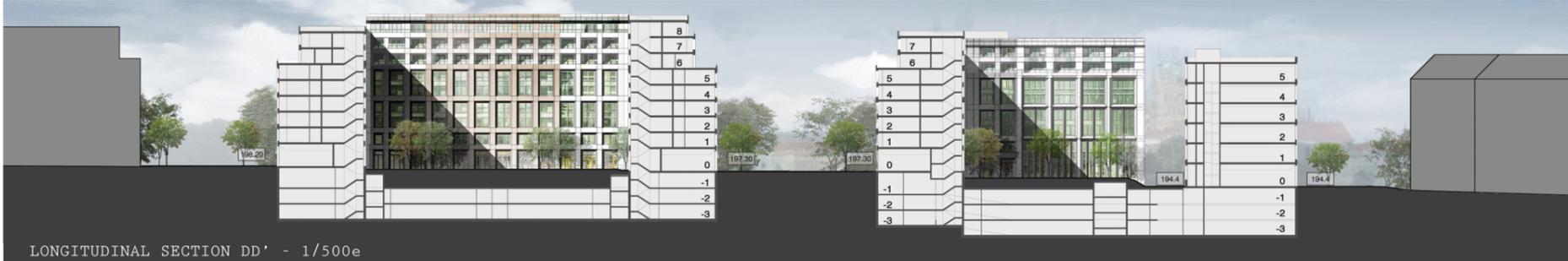
PERSPECTIVE FROM NÁDRAŽNÍ STREET



TYPICAL UNDERGROUND FLOOR PLAN [B05-B06] - 1/500e



GROUND FLOOR PLAN [B05-B06] - 1/500e



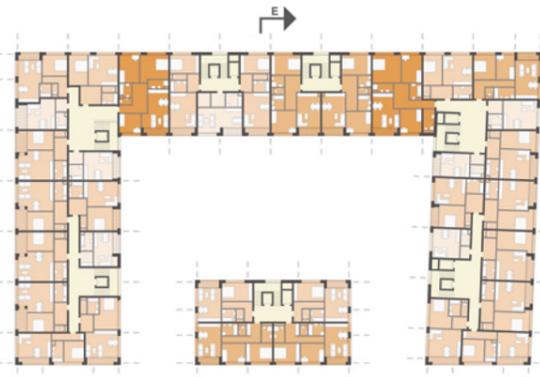
LONGITUDINAL SECTION DD' - 1/500e



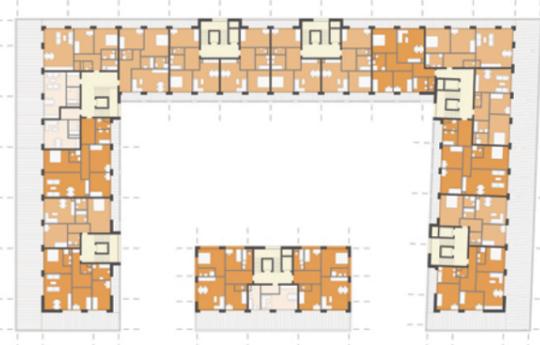
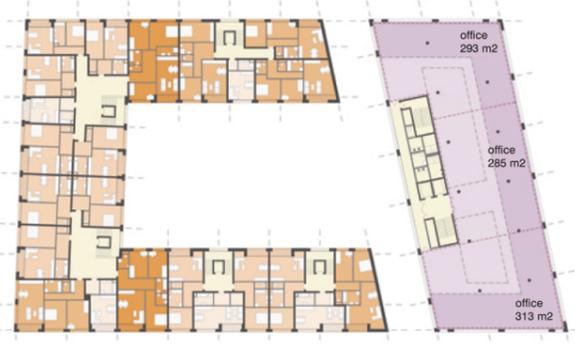
VALENTÝNCE STREET ELEVATION - 1/500e



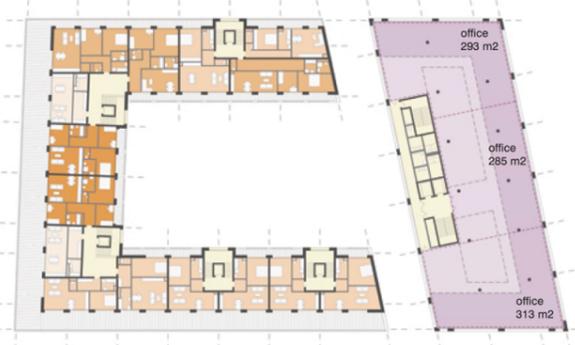
PERSPECTIVE FROM PEDESTRIAN BOULEVARD



TYPICAL FLOOR [B05-B06] - 1/500e



1st PENTHOUSE FLOOR [B05-B06] - 1/500e



LAST PENTHOUSE FLOOR [B05-B06] - 1/500e



- STUDIO (1+KK)
- 1 BEDROOM FLAT (2+KK)
- 2 BEDROOM FLAT (3+KK)
- 3 BEDROOM FLAT (4+KK)
- OFFICE BUILDING - WORKING AREA
- OFFICE BUILDING - MEETING ROOM



CROSS SECTION EE' - 1/500e



NÁDRAŽNÍ STREET ELEVATION - 1/500e



STROUPEŽNICKÉHO STREET ELEVATION - 1/500e



PEDESTRIAN BOULEVARD ELEVATION - 1/500e