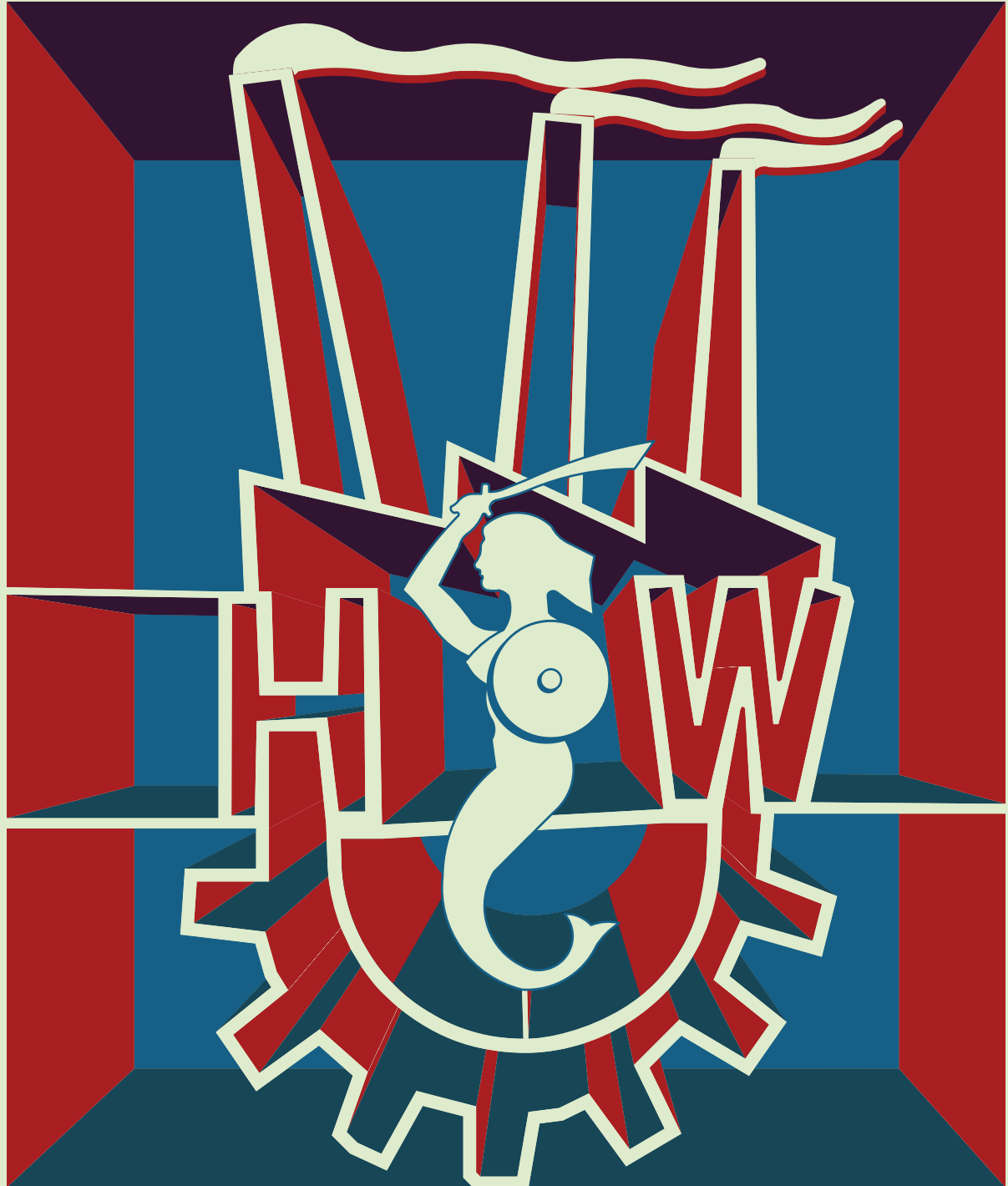


EUROPAN 15

WARSAW



STEEL
ECOSYSTEM



Dęby Młocińskie
- local nature conservation site

Młociny neighbourhood

industrial spur

Skłodowskiej-Curie bridge

Smelting Shop

Ventilation shaft

The "Galeria Młociny"
Shopping Centre

rolling mill

Wierzbno neighbourhood

Metro Młociny

The Huta ArcelorMittal Warszawa steel plant



city centre

steel plant gas pipeline

former rolling mill

Wawrzyszew neighbourhood

areas after demolition

electrical substation

former finishing house

warehouse

air-separation plant

shelterbelt trees

landfill

Project site

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Introduction

Once located in the distant outskirts of Warsaw, the area of former Huta Warszawa (Warsaw Steelworks) has become a quality location for housing projects, as the city continues to develop and expand. The continued operation of the steelworks, coupled with tangible pressure from investors who have set their sights on developing housing projects in the neighbourhood of an operating plant, are a potential source of spatial and social conflicts. Conveniently located and with good transport accessibility, the project site is currently closed and largely unused.

The competition task is to identify and tap, to the fullest extent possible, the potentials of sites at the interface of housing and industrial districts by making the existing industry an integral part of the model district of a productive city. The key challenge is to integrate the existing and prospective forms of the manufacturing business, including the jobs it creates, with other urban functions such as housing, services, entertainment and leisure.

The competition aims to select the best proposals for the integration of the strategic site with the rest of the city, and the best vision of a flexible, multifunctional, open and harmonious spatial structure that engages in dialogue with its urban and social contexts. It is essentially about reconciling, as best as possible, the highly divergent expectations of various individuals and social groups with regard to the site. Priority should be given, however, to its unique nature. Detailed planning documents and architectural designs relating to the strategic site are not the expected outcomes of the competition. Rather, what the European 15 competition strives to deliver is new avenues of thinking not only about the Huta district, but also about Warsaw as a productive city. It is expected that these outcomes will be used in developing a new master plan for Warsaw to guide the city's spatial policy in the years to come.

This study presents the multifaceted considerations and contexts that should be taken into consideration by the designers. A detailed description of the design problem, including design guidelines, is provided at the end of this publication.

Warsaw

Warsaw is the capital of Poland and of the Mazowieckie Province. Located in east-central Poland, it is the largest city in the country and its economic and cultural centre, as well as one of the major centres for industry. Although the role of industry in Warsaw's economy has diminished significantly over the last three decades, the city is still home to important manufacturing plants. The craft-based industry has been thriving here as well. Until recently, the decline of industry, coupled with the rapid development of various services, was seen in Poland (same as in many other countries) as a positive trend. However, recent years have seen calls for reindustrialisation.

The city has an area of 517.2 km². In terms of the area within administrative limits, comparable cities in Europe include Budapest (525.1 km²) and Prague (496.2 km²). In 2018 the city had a population of 1.77 million, representing about 4.5 percent of Poland's population. Cities with comparable populations in Europe include Vienna (1.79 million) and Budapest (1.76 million). As at 2018 Warsaw had a population density of 3,412 people per km². Owing to its high living standards, Poland's capital is an attractive place to live in, with people from across the country and from abroad constantly gravitating towards the city. In 2018 the total migration for permanent residence was 7,847 people. Given this trend, Warsaw's population is projected to increase to 1.84 million by 2030¹.

1. Based on: Barbara Czerwińska-Jędrusiak (ed.). *Statistical Yearbook of Warsaw*, Statistical Office of Warsaw, Warsaw 2018, p. 31, p. 149

However, these official data do not include migration unrelated to the official registration of permanent residence, and as such do not provide a full picture of the demographic situation. Also, it should be noted that until recently, Warsaw and Poland were almost completely ethnically homogenous, but this is quickly becoming a thing of the past. Like many other places across Poland, Warsaw teems with immigrants from Ukraine, but the city has also been seeing increasing numbers of newcomers from India, Pakistan and Nepal.

Warsaw is the most affluent sub-region of Poland. Its GDP per capita in 2014-2016 is estimated at 293 percent of the corresponding figure for Poland at large². In terms of affluence, Warsaw stands out from the surrounding region, with one of the country's lowest unemployment rates (2.0 percent in 2017). By comparison, Poland's average unemployment rate in the corresponding period was 4.9 percent³.

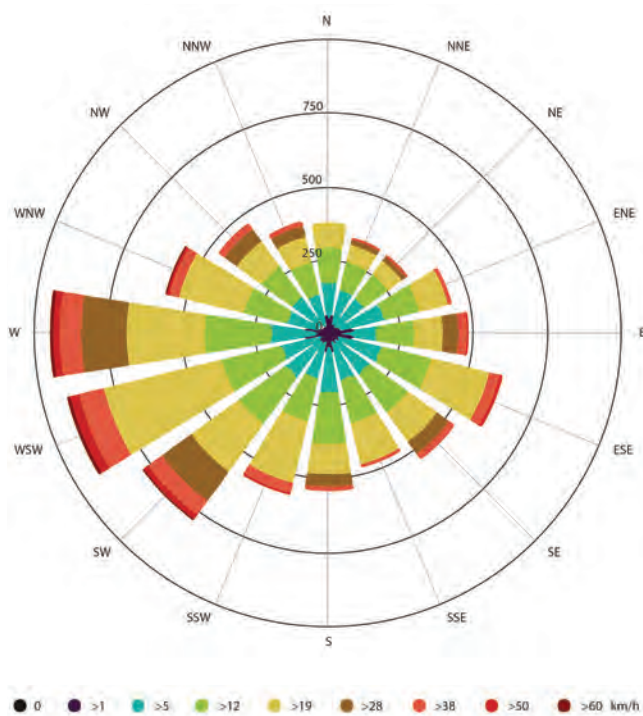
According to the #Warsaw2030 city development strategy, the Polish capital *means active residents, a friendly place and an open metropolis*⁴.

and pp. 348-349

2. Announcement of the President of Statistics Poland of 31 October 2018 regarding estimated gross GDPs per capita in the years 2014-2016. <http://stat.gov.pl/sygnalne/komunikaty-i-obwieszczenia/lista-komunikatow-i-obwieszczen/obwieszczenie-w-sprawie-szacunkow-wartosci-produktu-krajowego-brutto-na-jednego-mieszkanca-w-latach-2014-2016,281,5.html>, accessed on: 4.02.2019

3. Renata Bielak (ed.). *Poland in numbers 2018*, Statistics Poland, Warsaw 2018, pp. 38-39

4. #Warsaw2030. *Strategy*. A compilation, p. 17, <http://2030>.



Wind rose for Warsaw shows the number of hours per year of winds blowing from indicated directions e.g. SW: wind blows from southwest (SW) to northeast (NE). Source: www.meteoblue.com, Creative Commons license (BY-NC), access: 12.02.2019

Nature and climate

The city is located at the interface of the Warsaw Plain and the Central Vistula Valley. The border is created by the edge of the Warsaw Escarpment that passes through the northern part of the strategic site. The escarpment is a prime landmark of key significance for the development of left-bank Warsaw, as it divides the city into the upper and lower terrace. Most historic city plans in Warsaw were implemented based on urban axes perpendicular to the escarpment's edge.

As at 2018 a total of 122.26 ha of land within the administrative limits of Warsaw, representing 23 percent of the city's area, were under protection due to their natural values⁵. Warsaw is one of the few European capitals featuring forests within its limits. Currently, Warsaw has a substantial forest cover of about 15 percent (about 7,200 ha).

Warsaw's climate is determined by its location in the cool temperate climate zone, in the meeting place of continental and oceanic air masses. Wind direction analyses for Warsaw have shown a clear prevalence of winds blowing to the west (16 percent of the time annually). The second most prevalent wind blows in the south-eastern direction (10 percent of the time

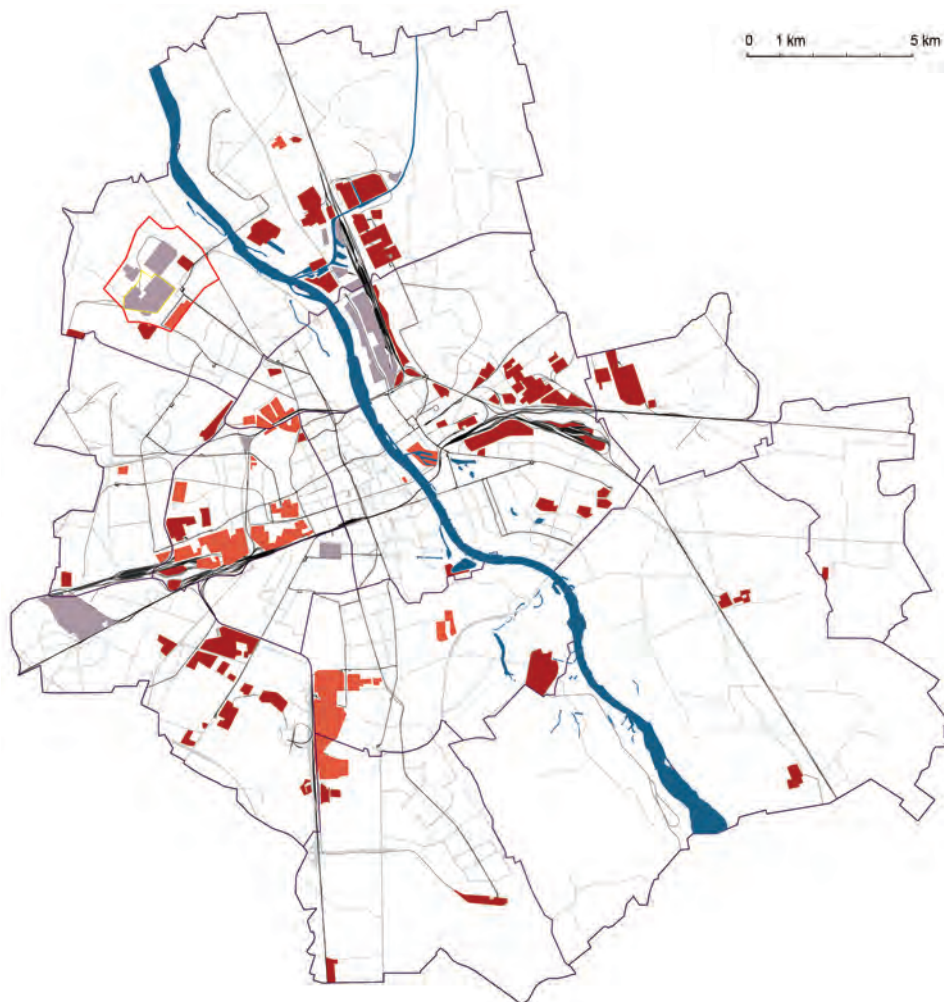
annually)⁶. From the end of the 19th century, prevailing wind directions were factored in the decisions on where to develop new industrial sites. Accordingly, new plants (including Huta Warszawa Steel Plant) were being built in the eastern, north-eastern and northern suburbs to prevent the smoke they emitted from being carried into housing districts.

Presently, the capital is struggling with excessive particulate matter and Benzo-a-Pyrene levels. For several years now, the poor quality of air has been a publicly debated and socially contentious issue. The main air pollution sources are private (house) heating systems and car traffic, followed by industrial plants, combustion installations, utility infrastructure and agriculture.

um.warszawa.pl accessed on: 8 Jan. 2019

5. Barbara Czerwińska-Jędrusiak (ed.). *Statistical Yearbook of Warsaw*, idem, p. 8

6. Jolanta Pawlak (ed.) *Climate of Warsaw*. Architecture & Spatial Planning Department of the City of Warsaw, p. 25, http://www.architektura.um.warszawa.pl/sites/default/files/klimat_broszura.pdf accessed on: 14.02.2019



Industrial and post-industrial areas in Warsaw:



Industrial and brownfield sites in Warsaw

In the communist period, Warsaw saw an influx of light and heavy industry. It was generally felt that the communist authorities were promoting this development not only for economic, but also social reasons, striving to transform the capital into a blue-collar city. As a result of the political and economic transformations that started in 1989, most of these plants were pulled down, abandoned or heavily underutilised⁷. In 1990 Warsaw accounted for 8 percent

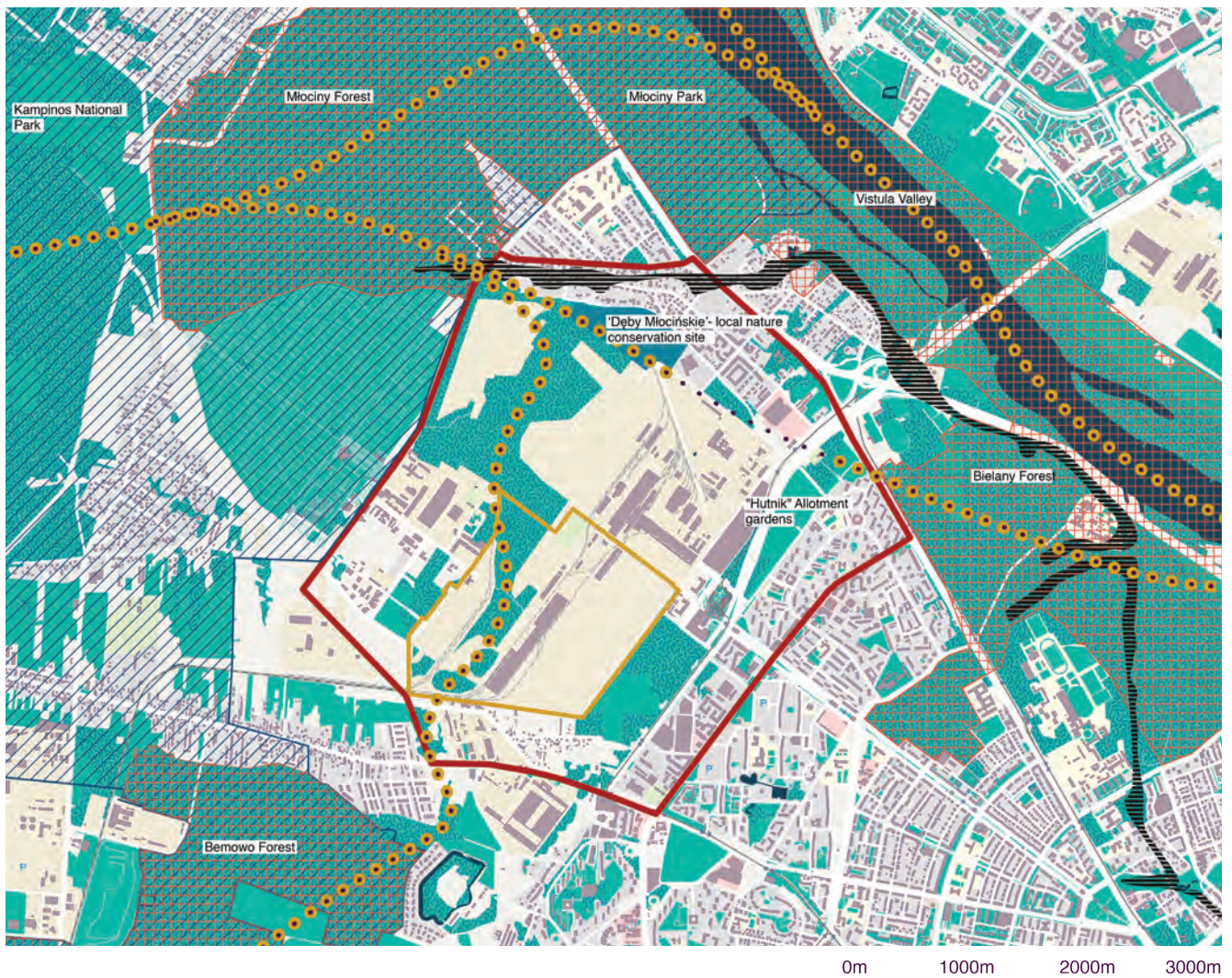
7. Mendel Maxymilian. *Transformacja terenów postindustrialnych w*

of the country's industrial output, and became Poland's second-largest industrial centre after the then Katowice Province. The industrial sector in Warsaw employed 186,000 people⁸. In 2015 areas intended for industrial and service uses covered 5 percent of the city's area⁹.

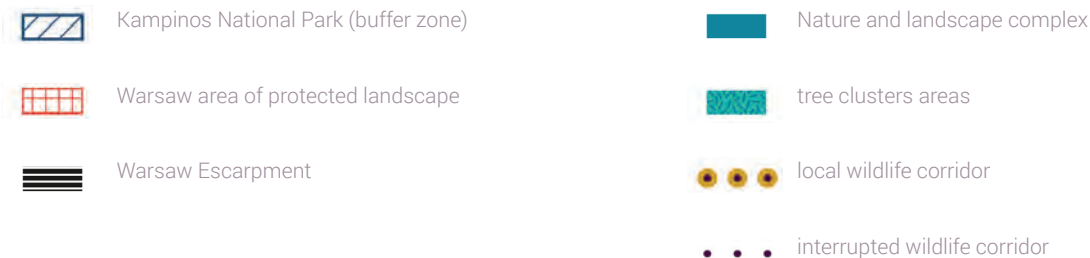
Warszawie ("Transformation of brownfields in Warsaw") [in:] Robimy Studium. Zbiór tekstów. Architecture & Spatial Planning Department of the City of Warsaw, Warsaw 2018, p. 130

8. *Warszawa. Rozwój przestrzenny. Warsaw. Physical Development.* collective work edited by Juliusz Wilski, Warsaw Branch of the Polish City Planners Association, Warsaw 1993, p. 76

9. *Studium Uwarunkowań i Kierunków Zagospodarowania Przestrzennego Miasta Stołecznego Warszawy ze zmianami* ("Master Plan for Warsaw. Amended"), Appendix 1 to the 01 March 2018 Resolution of the Warsaw City Council, No. LXII/1667/2018, p. 10



Huta Warszawa natural context



Once located in the suburbs, the former manufacturing and service areas (developed at the turn of the 20th century and in the 1950s – such as Huta Warszawa (Warszawa Steelworks)) currently lie in the city's interior. Due to a decline in industry in the 21st century and the resulting change in the industry structure, as well as the downfall of land-extensive manufacturing branches, these areas are now largely brownfields. Some of them are being consistently repurposed into service and office districts, and retail spaces¹⁰. The prevailing trend, however, is towards the expansion of the housing use. Consequently, these areas, including

the former Huta Warszawa site, will soon become crucial in changing Warsaw's land use structure¹¹.

10. *ibid*, p. 21

11. *ibid*, p. 9

Strategic site

The strategic site is entirely located within the Bielany district and has an area of 648 ha. It is delimited by Wójcickiego, Dankowicka, Pułkowa, Marymoncka Przy Agorze, Sokratesa and Wolczańska Streets, and by the boundary of the planned N-S Route.

Natural context

The strategic site lies in the vicinity of large forest complexes:

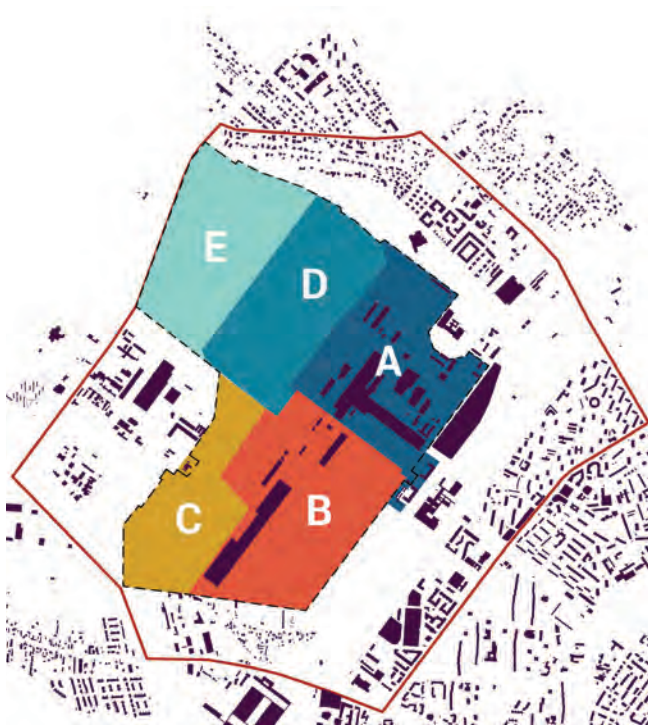
- the Kampinos National Park and its protection zone – the second-largest national park in Poland, in 2000 it was included in the UNESCO World Network of Biosphere Reserves;
- the Młociny and Nowa Warszawa Forests – remnants of the forest stand typical for the former Mazowsze Primeval Forest, currently constitutes an important part of the wildlife corridor connecting the Kampinos National Park with the Vistula Valley;
- the Bielany Forest – a nature reserve and its protection zone, a forest area owned by the Józef Piłsudski University of Physical Education
- Dęby Młocińskie and its protection zone, a local nature conservation site in the immediate vicinity of former Huta Warszawa;
- the Warsaw Escarpment and Vistula Valley.

The strategic site features vegetation specific to the post-industrial nature of the area. Open spaces are largely colonised by ruderal species and lawns. Idle land undergoes natural recolonisation, changing into brushy and wooded areas established from volunteer seedlings of fast-growing trees. Older wooded areas have come about by natural processes, as well as through planned plantings carried out by the steelworks in the 1970s¹².

The existing tree stands and brushes on the former site of Huta Warszawa offer habitats for all groups of animal species (birds, invertebrates, amphibians, mammals), including 60 species of nesting birds. Medium-sized and large mammals, such as moose, deer, roe, wild boars and foxes, are also found in the area, as it lies close to the Kampinos National Park¹³.

12. *Koncepcja urbanistyczna dla terenów poprzemysłowych ArcelorMittal Warszawa* ("A master concept for brownfields owned by ArcelorMittal Warszawa") by Chapman Taylor – Appendix 1 to the application of ArcelorMittal Warszawa Sp. z o.o. and Coinvest Sp. z o.o. to change the provisions of the Directions and Conditions of Capital City of Warsaw Spatial Development Study 22 June 2018, p. 39

13 *ibid*, p. 41



Schema of functional zones division of former steel plant Huta Warszawa area – see description in text

Huta Warszawa (Warszawa Steelworks)

The area of what would become Huta Warszawa was incorporated into the city in 1951. The plant was designed to operate on an extensive area of 227 ha¹⁴ with a view to ensuring its smooth operation and facilitating potential extensions. Even at the height of its production, however, in the 1970s, the plant was not using the entire area within its boundaries. Such an extensive use of land was typical for the planning of many major state-owned industrial plants in Poland and other socialist countries in Europe at the time. Underlying this trend were state policies prioritising the expansion of heavy industry and the nationalisation of land that did away with ownership-related use limitations.

A project that involved building a large manufacturing plant from the ground up had a major significance and various implications for Warsaw. First, Huta became a physical barrier for the city to expand to the north and consequently hampered the urbanisation of the areas neighbouring the Kampinos National Park, which was established in 1959. Second, as a site of strategic importance, off limits to the general public, Huta came to constitute the actual boundary of Warsaw. To this day, Varsovians do not seem to be particularly aware of the existence of this site. Third, Huta brought about a major social change in the capital

city, which was essentially the reason why this location had been chosen. “The establishment of an industrial plant of these proportions in the immediate vicinity of Warsaw will have not only economic, but also social implications,” wrote an anonymous editor of the *Stolica* newspaper in 1952. “Thanks to its expanding industry, Warsaw will become a major working-class city¹⁵.”

Like other large industrial plants owned by the state, Huta provided its employees and their families with a robust social services scheme, with services available on the plant’s premises or in its vicinity. These included a vocational school, a technical secondary school and a general secondary school for adults, a consultation desk of the University of Mining and Metallurgy in Kraków, a healthcare centre with an in-house hospital, a cinema, a radio centre, a company newspaper, canteens, a sports club and allotment gardens. Also, two big housing estates – Wrzeciono and Wawrzyszew – were built with Huta’s employees in mind. In the 1980s a housing cooperative was established. Despite all these advantages, the complex network of services not directly associated with production and the large workforce involved enormous costs. In the market economy environment, this came to be seen as a liability. As part of the plant’s restructuring in 1992, what remained of the social infrastructure was pulled down, sold or taken into administration by the city.

14. <https://www.panskaskorka.com/hutnicy-o-hucie/>
accessed on: 14 Jan. 2019

15. S. Rośnie Huta Warszawa (“The emergence of Huta Warszawa”).
Stolica 18/1952 p. 5

ArcelorMittal (formerly Arcelor), the current owner, acquired the steelworks in 2005. The company made a number of investments to modernise the plant. Also, successful measures were taken to cut down accidents and reduce environmental impacts. Today, the Huta ArcelorMittal Warszawa steelworks is a prosperous manufacturer of 500 steel grades, with an annual steel output of 500,000 tonnes¹⁶.

The distribution of individual steel production stages over a large area, a result of the previously mentioned extensive land use, historic transformations and the economic crisis of the 1980s and 1990s, as well as changes in the manufacturing technology, forced the new owner to concentrate operations on a smaller area, and to optimise the use of available site. The objective is to relocate production to the area closest to the main entry gate, coming from the city, and to gradually add new functions in the brownfields located further to the north-west.

With the Młociny metro station and the Maria Skłodowska-Curie Bridge put in service in 2009 and 2012, respectively, Huta's transport accessibility, and thereby the area's value, increased substantially. Currently, developers are showing interest in the brownfields, as well as in the sites surrounding the plant, intended for industrial, service, storage and agricultural uses. New blocks of flats – the construction of which is the most profitable business – are springing up around the plant. However, the noise generated by steel production necessitates numerous restrictions on housing locations. A shopping centre is under construction in the immediate vicinity of the Młociny interchange.

For the purposes of this study, we divided Huta's area into zones intended for different uses:

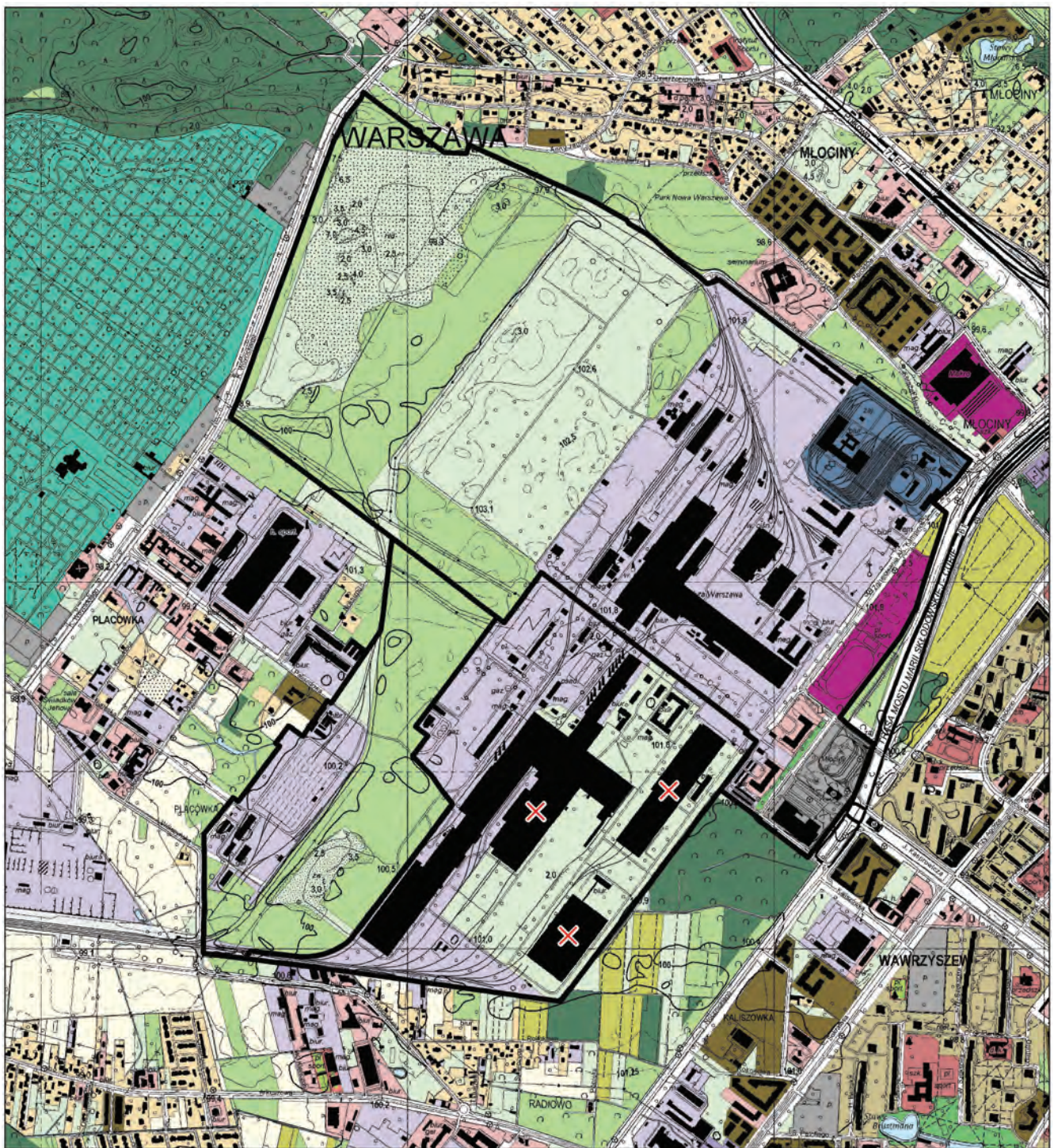
- Zone A – the area which is and will be used by the steelworks. Also located here are the company's administrative offices.
- Zone B – the area which is currently unused but intended for steel production use, should the plant expand in the future. ArcelorMittal, the site's owner, permits only temporary forms of development (10 to 15 years) for all use types except for housing.
- Zone C – the area which is excluded from production use and intended for all types of buildings, including housing (it is located in a safe distance from noise sources). Currently, a breaker's yard with an industrial spur is located here. The rest of the area is overgrown by ruderal vegetation (colonising soils altered by human activity, including in particular urban environments) and featuring a forest (volunteer seedlings).
- Zone D – once the site of the Przedsiębiorstwo Budowy Huty Warszawa (Enterprise for the Construction of the Warsaw Steelworks - special company), later used by construction businesses. Now idle, the land is privately owned. The owner is planning housing and service developments here, but the ArcelorMittal Warszawa steelworks is refusing to accept this type of use.
- Zone E – the industrial waste deposit of the steelworks, located in the north, with an area of 3.4 ha, currently undergoing land reinstatement¹⁷. Located far from production sites, the area will be suitable for housing developments. The southern part features forest-type buffer vegetation.

In the European 15 competition, zones B and C constitute the project area.

In 2006 the Warsaw City Council passed a resolution on drafting a Local Spatial Development Plan for the Huta area ("Placówka"). That plan has not been adopted until now. The general assumptions of the draft plan have not been consulted on with the public yet, and they do not constitute a guideline for the competition Participants.

16. <http://arcelormittal-warszawa.com/kim-jestesmy/o-arcelormittal-warszawa> accessed on: 15 Jan. 2019

17. Koźmik Edward, *Zaczęła się rekultywacja odpadów* ("Land reinstatement has begun") [in:] *1. ArcelorMittal Warszawa* Iss. 35, 2017, p. 6



Huta Warszawa area - functional zones. ed. Architecture & Spatial Planning Department of the City of Warsaw, 2019

0 m 250 m 500 m 1000 m

- | | | | |
|--|---|--|---|
| | Areas limits | | 12. Green areas with majority of tree clusters |
| | 01. Multifamily residential areas | | 13. Other green areas and undeveloped areas |
| | 02. Multifamily residential areas with higher percentage of green areas | | 14. Allotment gardens areas |
| | 03. Single-family residential areas | | 15. Cemetery areas |
| | 04. Large scale retail areas | | 16. Agricultural areas and post-agricultural areas |
| | 05. Social services areas | | 17. Open water areas |
| | 06. Service areas | | 18. Technical infrastructure areas |
| | 07. Sport service areas | | 19. Depots and public transportation infrastructure areas |
| | 08. Sport-recreation service areas | | 20. Road infrastructure areas |
| | 09. Production and services area, warehouses and post-production areas | | 21. Airfields areas |
| | 10. Forrest areas | | 22. Railway infrastructure areas |
| | 11. Developed green areas | | 23. Roads |
| | | | demolished buildings and structures |



Timeline

1948	The Polish government is looking for a location of a new plant to manufacture high-grade stainless steel (Huta Stali Szlachetnych). Several locations in the Mazowsze Region are considered apart from Młociny near Warsaw.	1954	First two plant buildings are handed over – the “red office building” (for Huta’s management and an outpatient clinic) fronting Heroldów Street and a canteen with a common room – today, these buildings are no longer there.
1951	A decision is made to locate the steelworks in Młociny, Placówka and Wawrzyszew. Huta’s area is incorporated into the administrative limits of Warsaw.	1956	The construction of open hearth furnaces and stacks. Erection of facilities: the main shop floor, rolling mill and gas production and gas production facility
1952	The construction of Huta Warszawa starts on an area of 150 ha.	29 April 1957	Huta Warszawa launches steel production.



Huta Warszawa Steel Plant skyline, *Aerial view of Warsaw. Stolica*, Special issue, 1962, p.40

1957-1968	New production departments are launched:	1958	The construction of the administrative buildings flanking the main entrance from Kasprowicza Street is completed. The Electromechanical Schools Complex and the 117th General Secondary School at 3 Pstrowskiego Street (now Zgrupowania AK "Kampinos" Street) are opened. The schools operated there until 2005.
	1957 – Cast Steel Foundry		
	1958 – Smelting Shop and Forge		
	1960 – Zgniatacz Rolling Mill		
	1961 – Drawing Mill		
	1962 – Heavy and Light Plate Rolling Mill		
	1965 – Steel Strips Cold-Rolling Mill	1960	The plant has a workforce of 621 white-collar and 2,700 blue-collar workers, and educates 239 students. 1,902 people work on construction sites.
	1968 – P48 Medium and Light Plate Rolling Mill (since 2012 – P20)		
	The Orzeł movie theatre (in the former common room fronting Heroldów Street) and the Huta Warszawa Community Centre.	22 July 1961	A tram line is put into service, leading to the "Huta" tram terminus fronting the plant's main entry gate.



Huta Warszawa Steel Plant (part), Photo: Jacek Sielski, *Stolica* 49(1252)/1971

around 1960	An above-ground gas pipeline explodes, resulting in a fire. Detailed human death toll is kept secret by the communist authorities.	14-15 December 1981	Strike in the plant.
1968	The plant has a workforce of 9,000.	1992	Huta Warszawa is privatised – the plant is acquired by Lucchini, an Italian company. The plant changes name to Huta Lucchini. A number of infrastructure upgrades are implemented:
1970s	The plant has a workforce of 10,000. The first Polish-designed computer ("Odra") is launched.		
1972	US President Richard Nixon visits the plant.		1997 – the smelting shop is equipped with an electric arc furnace
28 August 1980	The "Solidarność" Trade Union launches a strike		1998 – a new smelting shop is opened
30 August 1980	The first mass for the steelworkers celebrated by priest Jerzy Popiełuszko (murdered in 1984 by state security officers).		2004 – the Steel Strips Cold-Rolling Mill is closed
1981	Marshal law is declared in Poland. The plant is surrounded by the military and militia.		



Huta Warszawa workers pray for shot Pope John Paul II, May 1981.
Photo: unknown, source: <https://popieluszko.ipn.gov.pl>, access: 20.02.2019

2005	Arcelor acquires the plant. After Arcelor's and Mittal's merger, the plant changes name to Huta ArcelorMittal Warszawa. The Lucchini family continues to own some of Huta's land not intended for industrial production, and later sells 93.5 ha of it to Pirelli Pekao Real Estate*.		The in-house schools are closed.
	2005 – the New Light Plate Hot-Rolling Mill is constructed		The Friends of Huta Warszawa Society is established.
	2006 – the old Light-Plate Rolling Mill is closed	2008	A proposal is made to build a housing estate for 8,400 flats on Pirelli Pekao Real Estate's land (design by APA Kuryłowicz). The project does not come into fruition due to conflicts with the expanding steel production business.
	2008 – the Bar Hot-Rolling Mill is opened	2013	The Młociny terminus is put into service
	2010 – production of steel members is launched		The buildings that once housed the vocational school and the in-house hospital are demolished.
	2012 – Medium and Light Plate Rolling Mill is closed	2015	The plant has a workforce of 750. About 3,000 people work for Huta on a permanent basis at external parties affiliated with Huta.

* Wojtczuk Michał *Dzielnica mieszkaniowa obok Huty Warszawa* ("A housing district near Huta Warszawa"), 29 June 2008, http://warszawa.wyborcza.pl/warszawa/1,34884,5405248,Dzielnica_mieszkaniowa_obok_Huty_Warszawa.html, accessed on: 9.01.2018

Air pollution

In the past, Huta Warszawa was a major contributor to deteriorating air quality. The main reason behind it was that the plant used hard coal to produce gas (about 200,000 tonnes of coal a year). After 1990 the "dirty" coal-fired installations were put out of service. Nowadays, the steelmaking process is based on electricity and "clean" natural gas supplied through a pipeline. Particulate matter, depositing and forming ginger layers on buildings in nearby housing estates, was another air pollution source. Emissions of particulate matter and gases were cut down by 90 and 63 percent, respectively, since 2000. ArcelorMittal's analyses have shown that the air pollution caused by the plant does not lead to substandard air quality outside the plant's area. The air quality on the strategic site is generally good¹⁸.

Land and subsoil water pollution

Two areas at the strategic site have been identified to have exceeded maximum allowable values of pollution of soil with heavy metals and fuel oil derivatives:

- a) a landfill of steelworks waste (in zone E),
- b) a scrapyard (in zone C).

Huta ArcelorMittal Warszawa (ArcelorMittal Warsaw Steelworks) is in the possession of up-to-date ground studies and a land reclamation scheme for both areas. The landfill is currently being closed down and the land is being reclaimed, whereas the scrapyard grounds will undergo reclamation after its liquidation scheduled for 2022.

Studies have shown that most of the post-industrial area is characterised by subsoil water of poor chemical quality. The pollution is the consequence of the former operation of Huta, other industrial plants located nearby (the non-ferrous metal works Norblin) and the Northern Municipal Graveyard. These days, the influence of the steelworks on subsoil water has been reduced to the least possible, thanks to the applied anti-pollution systems.¹⁹

18. *Koncepcja urbanistyczna dla terenów poprzemysłowych ArcelorMittal Warszawa (Architectural concept for the post-industrial areas of ArcelorMittal Warszawa)* ed. Chapman Taylor, op. cit., p. 38
19. *ibidem*, p. 18

Noise

The acoustic climate of the area is affected by traffic (heavy traffic roads, a tram line) and industrial noise. Despite the considerable technological advance, the production of steel and rolling of steel produce, in their very nature, cannot be anything but noisy. Fighting the noise is one of the biggest challenges of the administrator of the steelworks.²⁰ On the premises, there are several sources of noise of different kind, which are eliminated by means of special structures or silencers. At present, the level of noise generated by the steelworks falls within the normal range, which has been confirmed by inspections of the Regional Inspectorate of Environmental Protection; during the day, the production noise cannot be separated from the background noise (road traffic). Since, however, Huta is generally associated as a source of noise, it is also attributed noise which it does not generate. Noise perception depends on individual human predisposedness and other factors such as the direction of wind. It is assumed, however, that housing development should be located at least 900 m from a steelworks. That is why ArcelorMittal Warszawa refuses to devote some of the land to housing sites.

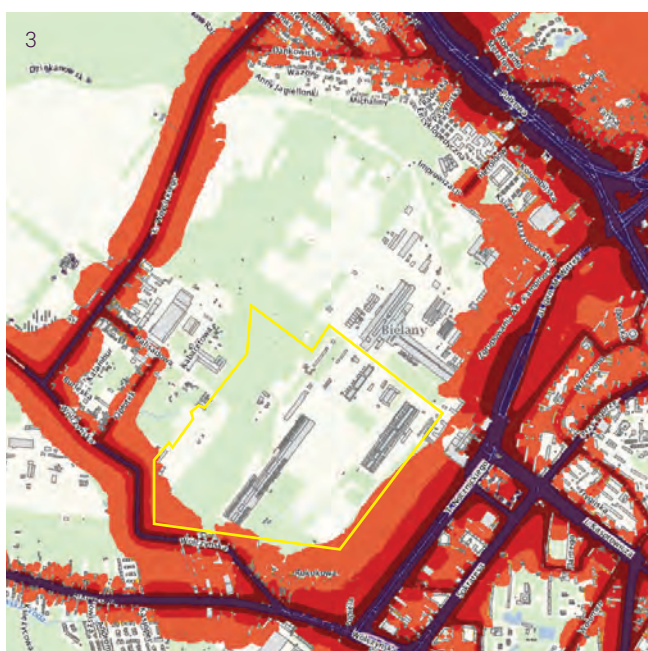
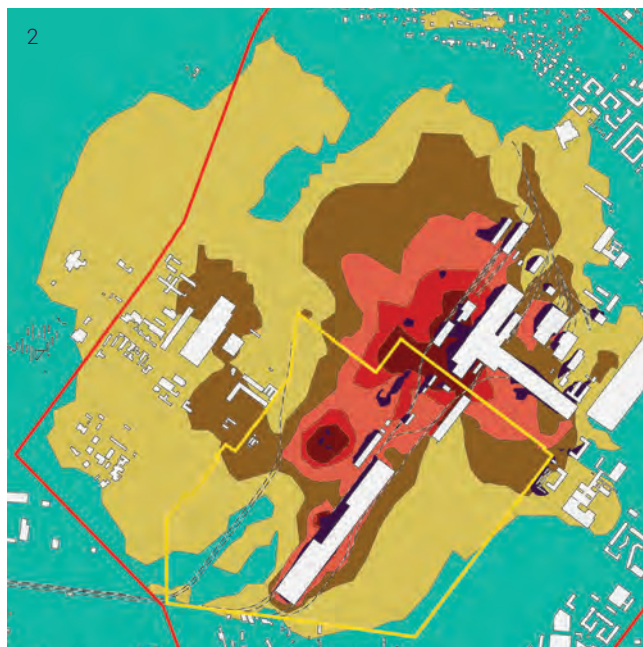
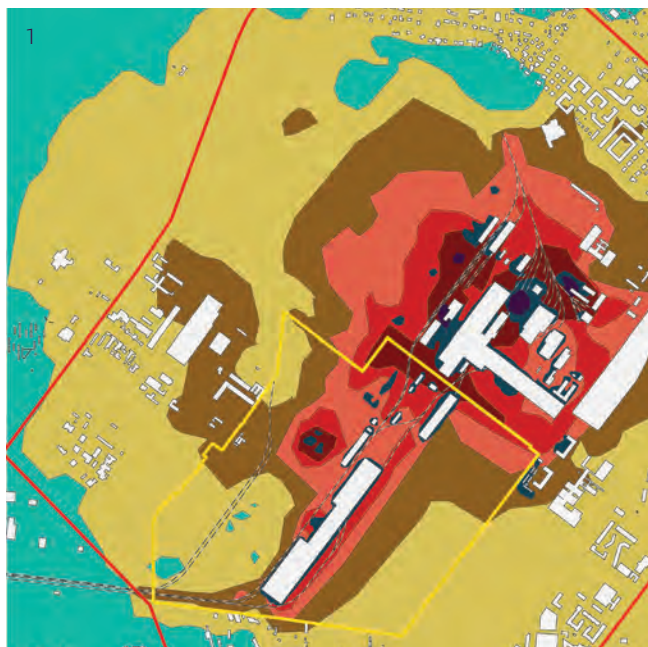
Architecture and urban planning in Huta

The Huta Warszawa complex was designed by the Polish enterprise Biprohut-Gliwice. Huta was to have a monumental axial layout, with large workshops arranged perpendicularly to both sides of the axis of the Kasprowicza street. The entrance to the premises is today flanked with twin office blocks, which had initially been to be decorated in the social realist style. The original project authored by Henryk Włodarczyk and Ryszard Łagutka assumed underscoring of the importance of the plant through an entrance square with an obelisk.²¹ More than ten versions of the project were prepared,²² but the project, following departure from the social realist doctrine after 1956, was finally implemented in a much more modest version – with a smaller square, without an obelisk, and with plain office blocks. Today the area of that planned square is occupied by a car park. A remnant of the original design is the housing development

20. *The residents of Bielany have ceased to take notice of our production.* [in:] *1 ArcelorMittal*. No. 8/2010 p. 5

21. Szmidt Bolesław. *Architektura przemysłowa – wielki temat twórczy* („Industrial architecture – a great subject of creative deliberations”), *Architektura* iss. 10, 1954, p. 236

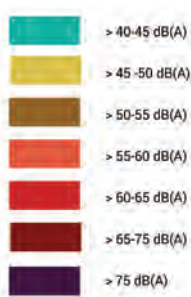
22. S. M. *Stal z Huty Warszawa (Steel from Huta Warszawa)*, *Stolica* iss. 14, 1956, pp. 8-9



1. Map of noise emission with level A equivalent zone radius at height of 4 m, daytime, projected level after relocation of processing and scrap yard.

2. Map of noise emission with level A equivalent zone radius at height of 10 m, nighttime, projected level after relocation of processing and scrap yard.

3. Road noise radius in Steel Plant area.



Own work based on:

[1] Noise pollution analysis CDM Smith, 2018 [in:] Urban design of Post-industrial areas ArcelorMittal Warszawa, ed. Chapman Taylor 20.06.2018

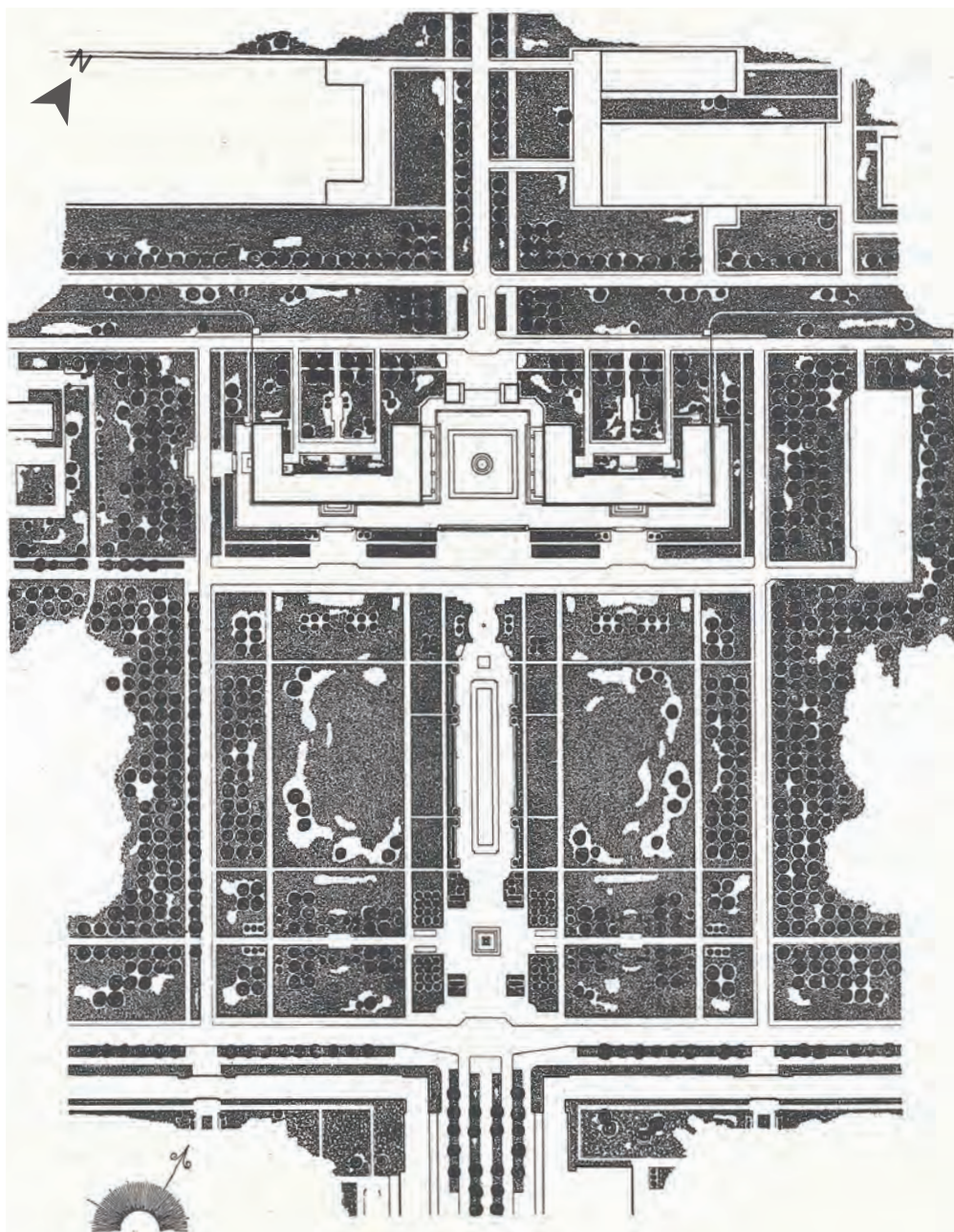
[2] City of Warsaw noise pollution map, <http://mapaakustyczna.um.warszawa.pl/>, access: 20.02.2019

of the Bielany I estate along the Kasprowicza street, which leads to Huta (designed by Maria and Kazimierz Piechotka, built between 1953 and 1958), having certain monumental qualities. It is worth noting that, by the time of the extension of the Kasprowicza street to the main gate entrance to the plant, the premises were accessible only from the side of the Heroldów street, a continuation of another urban axis – the late baroque Bruehl Palace and Park.

The architecture of the industrial buildings in Huta looks consistent thanks to the application of uniform materials (prefabricated units of reinforced concrete and grey lime-and-sand brick). The structure of the workshops is primarily made of reinforced concrete, adapted to take load from a gantry crane, which makes it more

resistant than relatively thin panel walls. In recent years, most of the unused buildings have been torn down. The analysed site (zone B) is occupied by two halls, of the former finishing shop and rolling mill with preserved smokestacks, nowadays used as store rooms, as well as the building of the transformer station, a one-storey storehouse (with an interesting covering made of reinforced concrete) and other minor facilities. The new rolling mill (from 2005) and the new oxygen plant (1998) were built using modern technologies such as layered boards, which makes them stand out from the other, older buildings.

A recognisable element of the panorama, visible from the outside of the Huta (Steelworks) premises, were two rows of smokestacks adjacent to the former finishing



Project of the administration center of Huta Warszawa Steel Plant. In the central area two constructed and still existing administrative buildings (U-shaped plans), flanking the Steel Plant's gate and Kasprowicz Street ending..

Design:
arch. H. Włodarczyk
and arch. R. Łogutko,
cooperation:
arch. L. Machowski.
Source: *Architektura*
10(84)/1954

shop and rolling mill, around 40 m high, today partially torn down. Other characteristic structures include two water towers (off the premises).

Art and monuments in Huta

In 1977 the Huta (Steelworks) premises hosted an open air of the Association of Polish Artists, aimed at *strengthening the alliance of the World of Labour with Art*.²³ The event became a starting point for the future Plant Art Gallery, expanded in the following years: "The Song of Warsaw" of 1977, "Warsaw Thermopylae" of 1979, "The Smelter" of 1981 (a work by a Huta employee), and "The Ear of the City" of 2010.

23. Jan Karczewski, Introduction to the catalogue of a post-open-air exhibition *Huta Warszawa – Plener 77*, 1978

On the premises of the steelworks, there are two monuments of significance to its history. In front of the plant gate stands, as a token, a historical roller designed by an engineer employed with the plant. Just behind the entrance, there is a copy the wooden cross at which priest Jerzy Popiełuszko celebrated masses for steelworkers in the eighties. Developed to a small chapel, the cross is a memento of the strike of the then steelworkers who, as the first Warsaw workmen, went on strike together with the crew of the Gdańsk Shipyard in 1980.²⁴

24. 35th anniversary of the August strike in Huta Warszawa.

<http://www.arcelormittal-warszawa.com/aktualnosci/35-rocznica-sierpniowego-strajku-w-hucie-warszawa> accessed on: 7.02.2019



Teresa Brzósiewicz — „Hymn Warszawianka”
(eng. Warszawianka Anthem), 1976



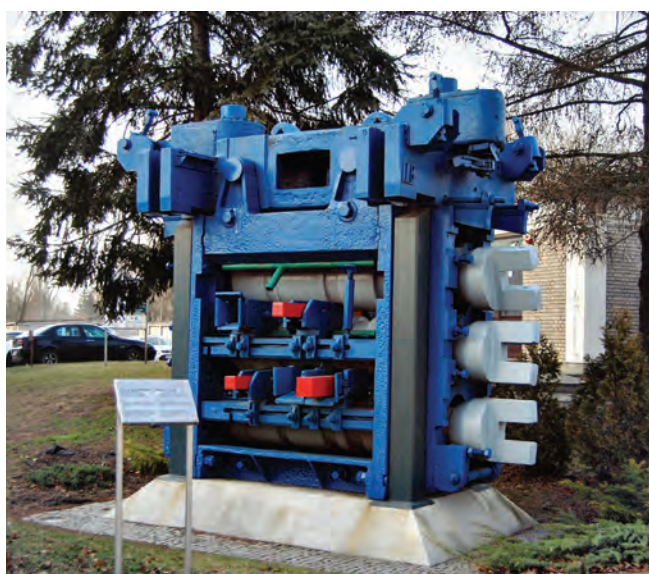
Marek Dubiel — instalation „Ucho miasta” (eng. Ear of the city)



Jerzy Szulc (artist-amateur, steel plant worker)
— „Wytapiacz” (eng. Smelter), 1980



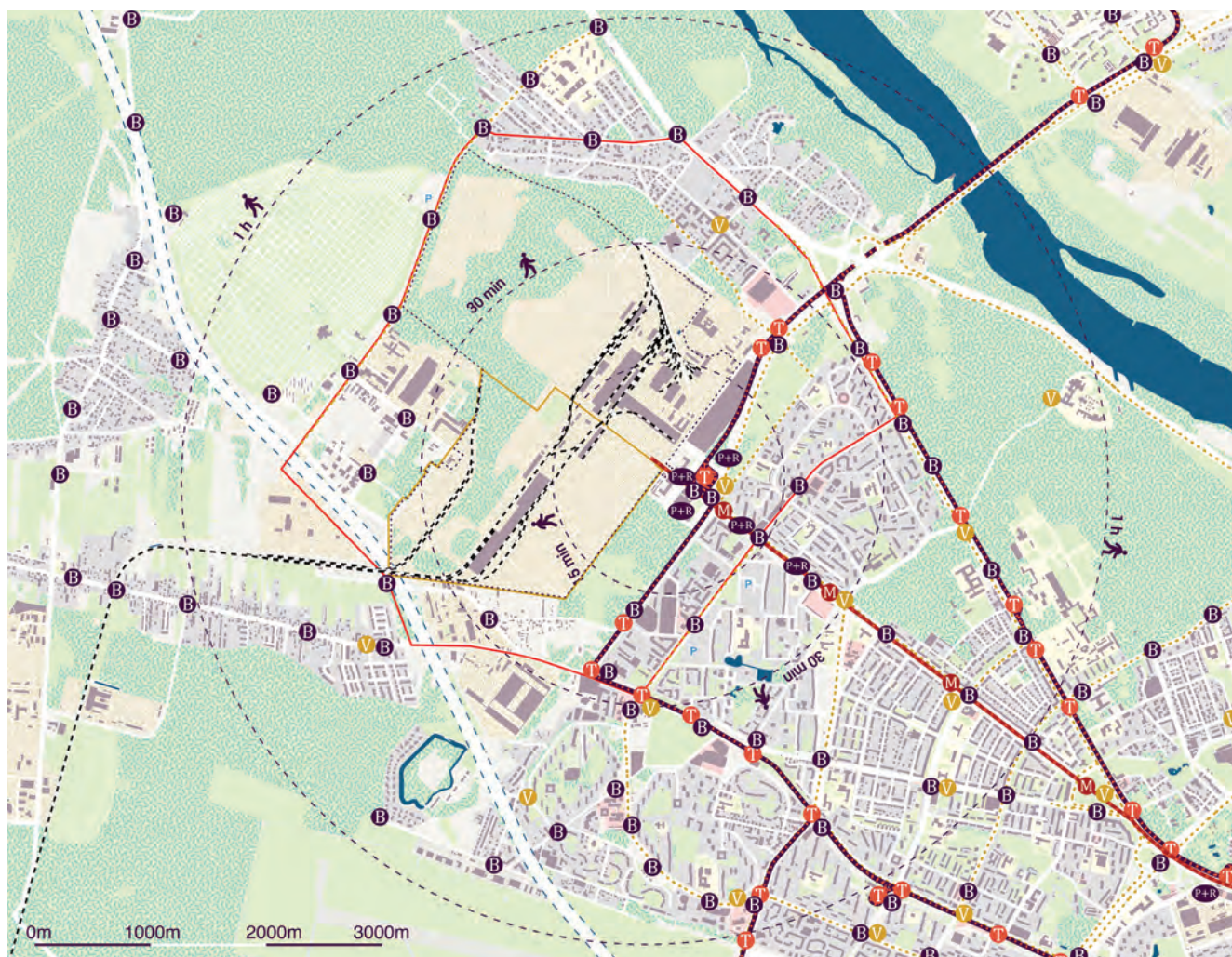
Chapel with the copy of the cross from strike of 1980



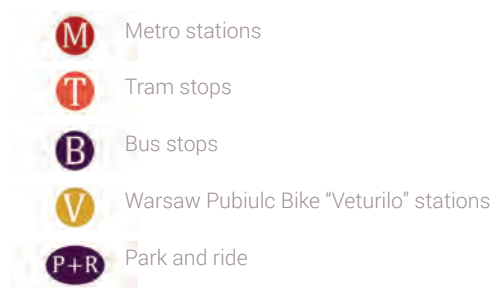
1968 rolling mill stand in front of steel plant gate



Steel plant gate with Warsaw coats of arms



Transportation conditions



Traffic conditions

Railway line

Huta has its own industrial spur, which branches off from the Warsaw Railway Junction at the Warszawa Jelonki station. Most of the supplies (80% of raw materials) and steelworks produce are transported by rail – two trains on average per day. In the beginning, on the premises of the steelworks, there was a railway loop, in the 21st century the railroad tracks were reduced to an dead end layout. Nowadays, the siding in zone C is being removed.

Road layout

Two important expressways run through the strategic site: the Pułkowa street, which is an outbound thoroughfare from the city northwards, and the Maria Curie Skłodowska Bridge Road, which will constitute the northern stretch of the outermost one of the three planned concentric ring roads of Warsaw – the so-called City Ring Road. So far, the right-bank part of the road has been completed: the bridge over the Vistula and the fragment connecting the bridge with the Młociny hub. The stretch before the steelworks, within the crossroads with the Kasprówecz street, is to be an overpass.

In the south-west, the strategic site borders on with the planned North-South route, an outbound thoroughfare towards Gdańsk, with the parameters of an expressway (S-7), connecting southern and northern districts. The closest 2 junctions are the Wólka Węglowa Junction and the Janicki Junction (direct exit to the strategic site). The project has been protested against by residents of the areas adjacent to it at various points. This may affect execution of the project.

The Bielany district borders on a lot of sites of pedestrian and cycling recreation; however, the lack of cycling lanes hinders outbound traffic, especially towards the Kampinos National Park. The lanes span a fragment of the General Maria Wittek avenue and the Kazimierz Wóycicki street. In the strategic site area, there are 2 stations of the Warsaw Public Bike Rental Service *Venturilo*: one within the Metro Młociny hub, the other – at the crossroads of the Heroldów and Książąt Mazowieckich streets.

Metro Młociny hub

The Młociny hub consists of a group of tram and bus stops as well as tram and bus loops, the Młociny underground station, the “Kiss and Ride” zone, and the “Park and Ride” car park. The hub operates 13 daily bus lines, 7 night lines, 4 tram lines. It also performs the function of a bus station for private bus companies which service domestic and international routes. The Młociny station is the last, 23rd station of the first line of the Warsaw Metro. Trains leave the station between 5:00 and 0:10

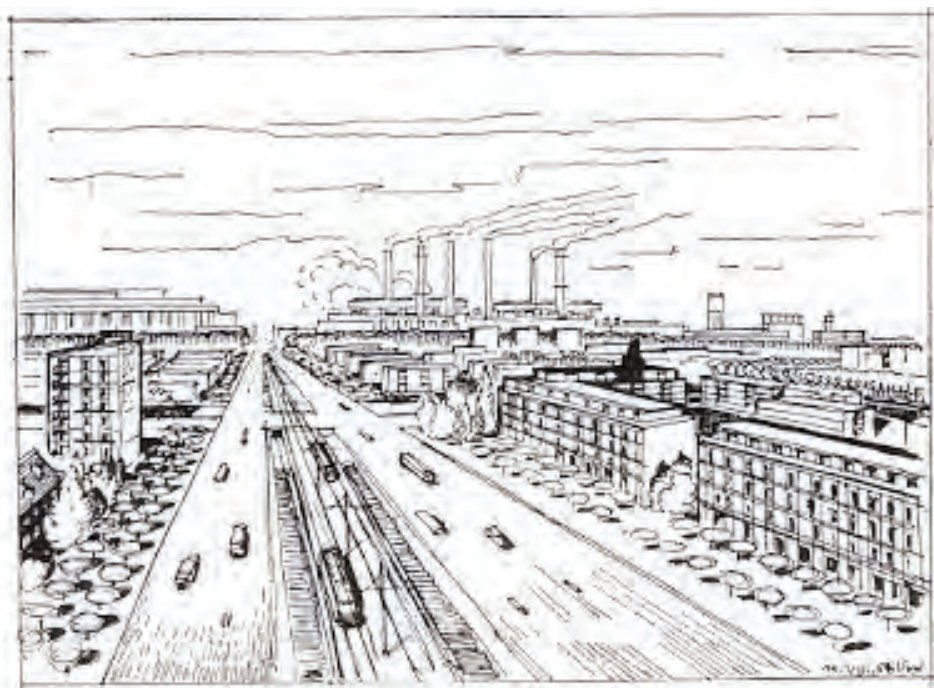
(2:45 at weekends). During the All Saints’ Day period, the Metro Młociny serves as the main transfer station for thousands of people visiting the Northern Municipal Graveyard. In the last years, on that occasion, this complex of facilities has been extended by a temporary stop for a special bus line connecting the hub and the graveyard, running at the rush hours every 40 seconds.

The hub zone accommodates four “Park and Drive” car parks (including a temporary one in the place of the future North-South route), with the overall capacity of 1,493 parking places, 35 parking places for the disabled and 232 parking places for bikes. Despite the large capacity of the car parks, the amount of parking space is insufficient, which is why drivers park their cars on pavements and in the surrounding estates.

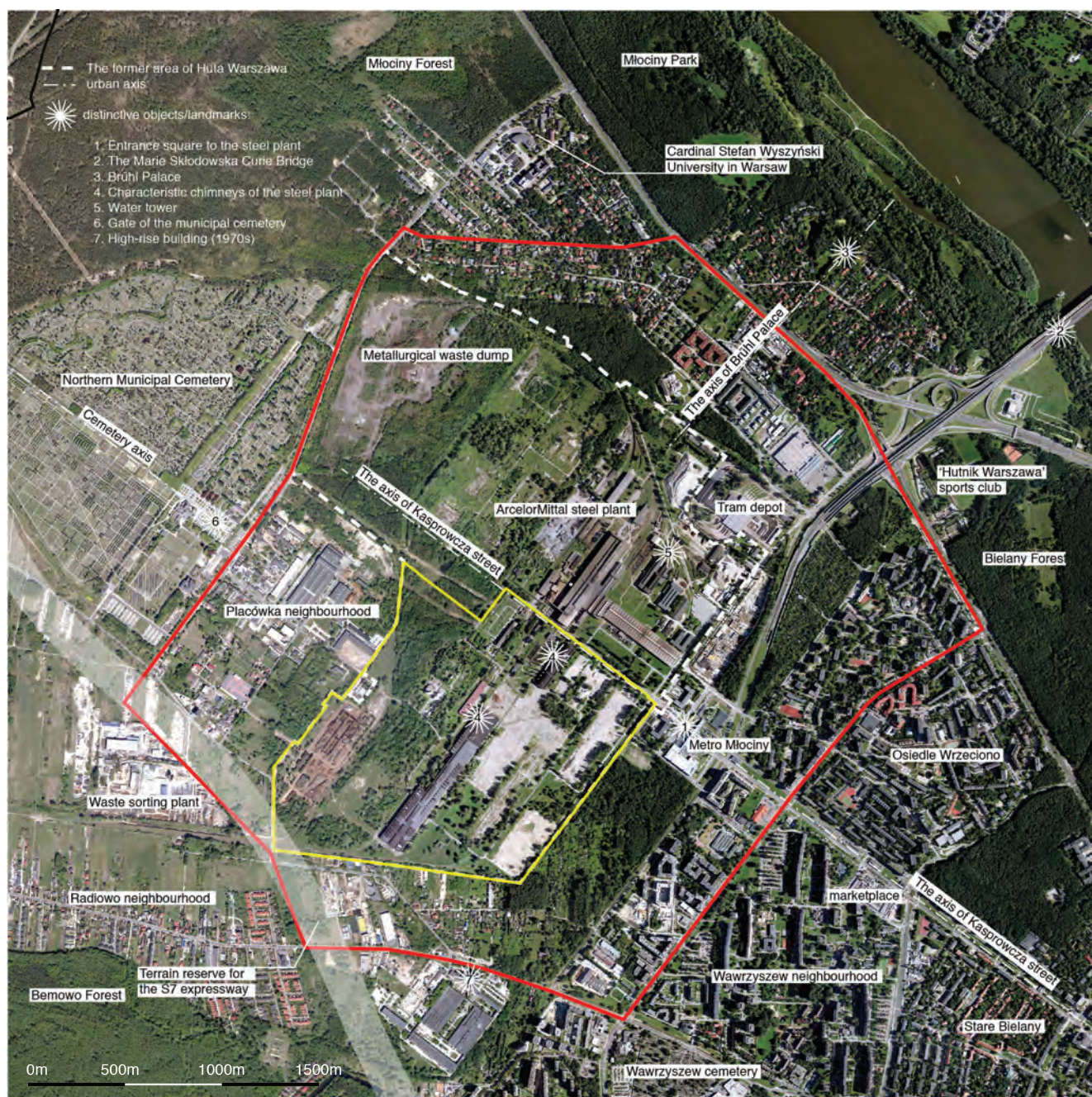
In 2018, as part of his electoral campaign, Rafał Trzaskowski who has been than elected for the mayor of Warsaw, put forward an extension of the first underground line to the northern-east by four stations, two of which would be on the premises of Huta Warszawa (the Huta station and the Northern Graveyard).

R-4 “Żoliborz” tram depot

Opened in 1963 in Młociny, the tram depot was thoroughly rebuilt and extended in 2015. Located on 10 ha at the eastern corner of the Huta premises, it operates 226 vehicles, running along 15 tram lines.



Artistic vision of Kasprowicza Street – view in direction of Huta Warszawa Steel Plant, Bielany I neighbourhood and tramway line. (not constructed), 1958.
Source: *Warszawski Kalendarz Ilustrowany*, 1959, illegible signature



Project and study site with surroundings

Description of the immediate surroundings

Northern Municipal Graveyard in Warsaw

The Northern Graveyard is the largest graveyard in Warsaw as well as one of the largest ones in Poland and Europe. It was opened in February 1973 and has been gradually extended ever since. By the beginning of 2019, 192,000 people have been buried within its boundaries. There are now 800 burial plots on the area of 143 ha. There are 3 ceremonial rooms and, since 1997, there

operates the only crematory in Warsaw. 17 funerals per day on average are held here. Similarly to other Polish graveyards, the Northern Graveyard is visited by large numbers of people during the traditional ceremonies of All Saints' Day (1 November and the days that precede and follow it). Because of the large numbers of visitors, some of the surrounding roads are closed for individual road traffic, but the ZTM launches an additional public transport service to and from the graveyard.

The main lane of the Graveyard (designed by Prof. Longin Majdecki) constitutes an urban axis parallel to the axis of the Kasprowcza street and the axis of the former Huta Warszawa, however, is not spatially connected with it.

Wrzeciono estate

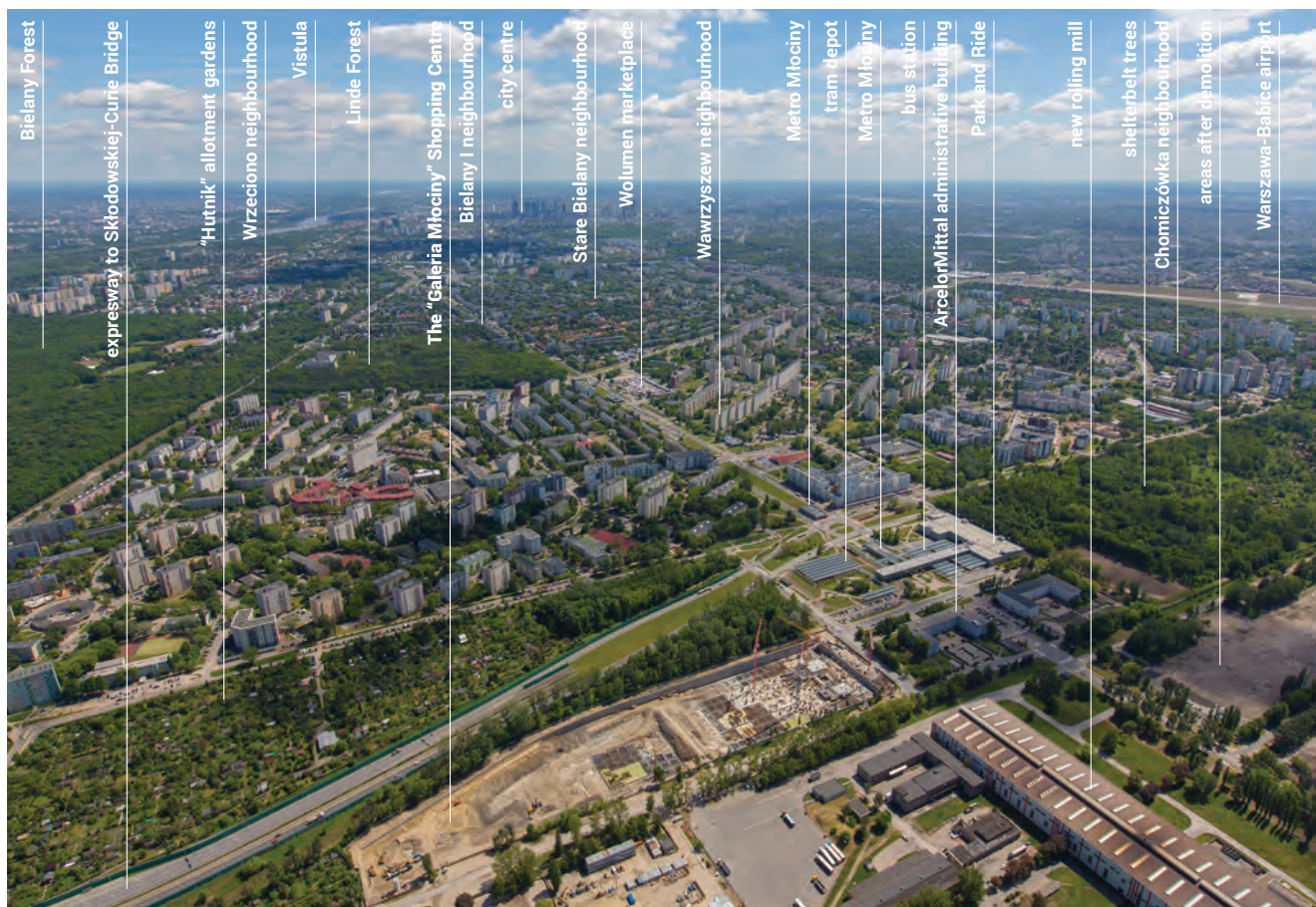
The erection of the estate, meant to be a housing base for those employed in Huta Warszawa, started in 1962. It was built on the territory of the military Młociny airport and pre-war Brzeziny settlement. Its investors were the Warsaw Housing Association (the city) and Huta Warszawa. The estate was designed by Stefan Deubel and Lech Zaborski. Initially, the project assumed 12,800 flats for around 38 thousand residents and a rich social infrastructure. The estate was to feature a compact building pattern differing from the rest of the district. Most of the blocks of flats were built of pre-fabricated concrete blocks. During the execution of the project, the number of flats was reduced, social facilities and services were pared off, and the cultural and entertainment programme was not implemented. Up to this day, the estate has preserved its distinct character. Today it is inhabited by 30 thousand people, mainly manual workers and retired Huta Warszawa staff. Deprived of the cultural and entertainment infrastructures from the very beginning, the Wrzeciono estate was only a few years ago among Varsovians regarded as a dangerous place. Data from the beginning of the 21st century distinguished Wrzeciono against

the whole Bielany district, much higher crime, lower level of education, a higher level of poverty and unemployment, and a higher percentage of people in retirement, with a smaller share of people in working age and almost the same proportion of people in pre-production age.²⁵

Wawrzyszew and Wolumen

Wawrzyszew used to be a village near Warsaw, dating back to the 15th century. In the 1970s it was almost totally demolished to make room for a residential estate of the same name. The estate's design by Ryszard Tomicki made use of the characteristic remnants of the former village, such as the Wawrzyszew Cemetery, its 15th-century St. Mary Magdalene's Church, and Brustman Ponds. Ten- to sixteen-storey blocks of flats were built as panel buildings (on the basis of the closed heavy prefabrication system). These long and tall buildings were compensated for with a much less dense development which followed the original

25. Appendix no. 2 to the Bielany Districty Microvitalisation Programme of the Capital City of Warsaw, p. 8, http://rewitalizacja.um.warszawa.pl/sites/rewitalizacja.um.warszawa.pl/files/zalaczniki/artikul/zalacznik_nr_2_bielany.pdf accessed on: 14.02.2019



Wrzeciono and Wawrzyszew. The "Galeria Młociny" Shopping Centre construction site and ArcelorMittal Steel Plant rolling mill in the foreground. Photo: Maciej Margas. Courtesy of Echo Investment



Wrzeciono neighbourhood,
Dorycka street.
Photo. Zbyszko Siemaszko, 1970.
Source: *Stolica* 25(1176)/1970

field-like land division (along the north-south axis).

In the strip of land between the steelworks and the estate (between Sokratesa and Naocznickiego Streets) there are urban infrastructure facilities (bus depot) and metal processing industry facilities. As of the early 21st century, this quarter is being regularly, yet spontaneously, built over by multi-unit residential buildings with high development density.

The Wawrzyszew estate has a market place known as Wolumen. The bazaar was created in the late 1960s and is one of the few remaining market places in the Bielany district and in this part of Warsaw. Nowadays, people meet here to buy and sell electronics (Saturdays and Sundays) or vegetables (Tuesdays and Fridays).

Placówka

This small settlement was established in 1921 in place of a former grange, and was destroyed during World War II. After this area was made part of Warsaw in 1951, an orthogonal street plan was developed for it and metal industry works were erected here, including the Norblin

non-ferrous metal rolling mill. Now most buildings here serve logistics, craft, or metal industry purposes, or provide mason's or funeral services for the nearby cemetery. The area is dominated by low-rise, chaotic buildings. It is separated from the rest of the city and requires redevelopment.

Młociny Estate

First mentions of this village date back to the 14th century, when Warsaw became a royal residence, and the primeval forest around the village were assigned as the official royal forest. In 1758 Heinrich von Brühl, a statesman, built here his suburban residence, which has survived until present day and which soon afterwards became a popular entertainment place for the local aristocracy. In the second half of the 19th century, Młociny gradually turned into a suburban summer resort destination. North of the village, the city authorities established a public Młociński Park, one of the favourite rest and recreation destinations for Warsaw's residents – partially due to the fact that steam ships plied between the village and the Capital City.



ArcelorMittal Steel Plant (zone A, foreground) and project area (zone B, background) in 2006. The area in the middle of the photo ready to build a new rolling mill. Most of the buildings demolished. Source: ArcelorMittal Steel Plant

In 1913, the Warsaw Hygienic Society (WTH) initiated work to implement the Młociny Garden-City conceptual design by the urban planner Tadeusz Tołwiński. Out of several hundred villas with gardens and a group of large public edifices, only 30 houses and a church had been built before the outbreak of World War I. Following the War, the project was discontinued. In 1951, Młociny became part of Warsaw. With the construction of the steelworks, the development of this district was hampered, which made it preserve its suburban character. In 2008, the second campus of the Cardinal Stefan Wyszyński University in Warsaw was opened on the premises of the former barracks of the Territorial Defence Regiment. This complex has been regularly extended.

“Galeria Młociny” Shopping Centre

The “Galeria Młociny” Shopping Centre, designed by APA Kuryłowicz & Associates and Chapman Taylor, is to occupy a 5-hectare plot of land between ROD Huta Warszawa allotments and the Huta premises. The Huta

Warszawa School Complex²⁶ and the company hospital, which used to be located there, were pulled down in 2013. The total area of the complex will be 220,000 m², including 71,000 m² for commerce and services, and 5,500 m² for office space. The complex is to include 220 stores and service providers, including 50 restaurants, bars and coffee shops, and a private outpatients clinic, a multi-theatre cinema, a fitness club, and an indoor trampoline park; and 2,000 parking spaces in the underground car park. And on top there will be a green roof terrace. The building has applied to BREAM²⁷ for a sustainable building certification

The shopping centre is to be opened in the spring of 2019²⁸.

26. Jarosław Zieliński. *Bielany. Przewodnik historyczny*. (“Bielany. A Historical Guide”) Published by RM, Warszawa, 2015 p. 202, available at: http://www.bielany.waw.pl/data/other/bielany_przewodnik_historyczny_ix_2016.pdf, accessed on: 9.01.2019

27. <https://www.muratorplus.pl/inwestycje/inwestycje-komercyjne/startuje-budowa-galerii-mlociny-aa-Cwav-ZYUx-xaev.html> accessed on: 9.01.2019

28. <https://galeriamlociny.pl> accessed on: 9.01.2019

Project site

The project site area is 115 ha. It covers two zones within the former Warsaw Steelworks area, known as Zone B and Zone C.

Zone B

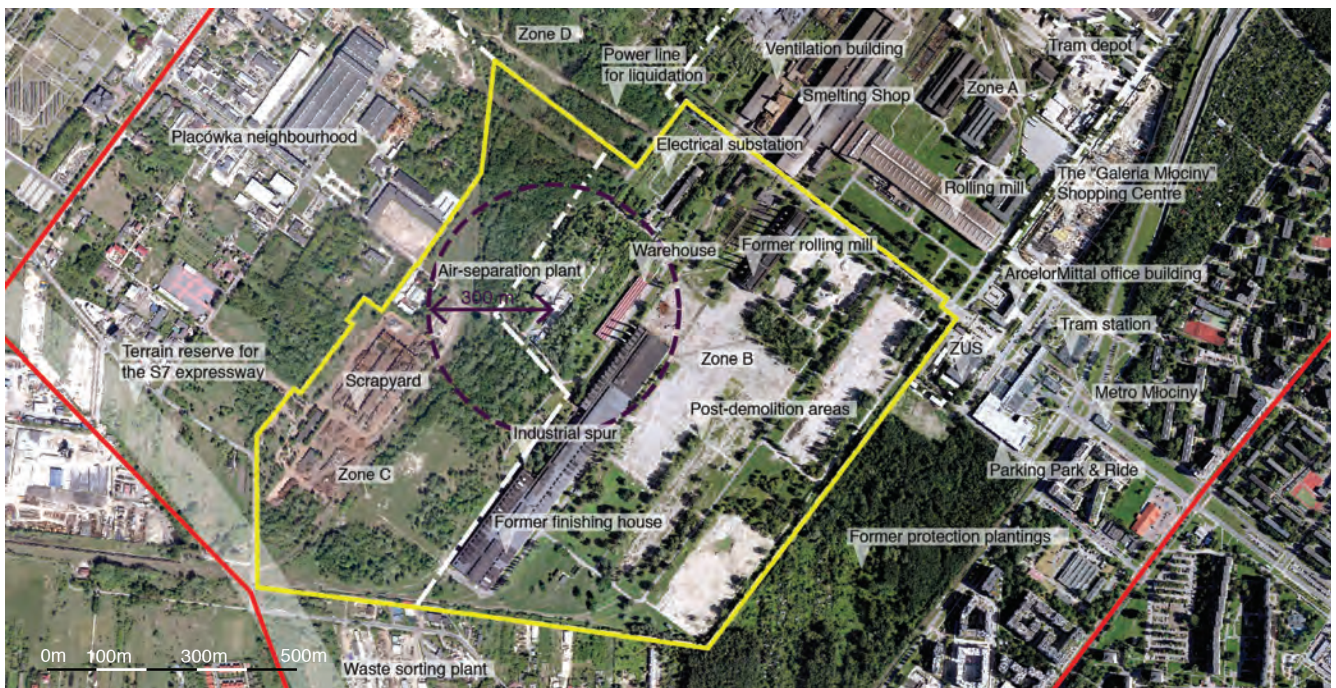
Located south-west of Kasprowicza St., this was originally the Steelworks' production area. Now it no longer serves steelworks production purposes. In the past, this area was densely built up with production floors, most of which were demolished during the last decade. Today, this area is largely undeveloped. But there are a few industrial buildings here, representing valuable architecture. These are used by Huta ArcelorMittal (Steelworks) and include:

- a former finishing room – 600 m long and about 20 m tall, now used as a storage area,
- a former rolling mill – with distinctive 3 brick stacks, now used as a storage area,
- and a warehouse with a loading platform with a distinctive reinforced-concrete roof, now used as a storage area.

In Zone B, there is infrastructure necessary for the operation of Huta ArcelorMittal, such as:

- an industrial siding, used to supply raw materials to the steelworks by train – on average, 4 rides a day (2 with cargo and 2 return rides).
- an electrical substation to supply power to the Steelworks,
- a gas pipe to supply gas to the Steelworks, and
- a new air-separation plant built in 1998 to obtain oxygen for processing purposes by cooling down air to -178 °C.

While there are no standards in place concerning a minimum clearance zone around air-separation plants, it is generally assumed that no functional development for permanent use by people (such as office or residential buildings) should be located within a distance of 300 m to the plant.



Project site

Zone C

Zone C is located west of Zone B and neighbours Placówka from the west. In most part, Zone C is covered by a young, volunteer-seedling forest, which is starting a green corridor cutting through the strategic site along the north-south axis. The western part of this area is taken up by a scrap yard, where scrap metals are stored and processed before being put into a metallurgical furnace. Scrap metals account for about 10% of the processed raw materials. Scrap steel is stored outdoors and transported using overhead cranes travelling along a steel frame. The scrap yard has its own industrial siding, which was originally part of a rail loop around the Warsaw Steelworks. Together with the necessary trackbed, the yard is to be moved to Zone A, and the area it now occupies is to be subject to land reclamation (because of soil contamination) and used for development.

The former Huta Warszawa (Warsaw Steelworks) area should be a testing ground for the concept of “productive city”, where production again becomes the source of income for the local population. A productive city is an efficient city, designed to save commute time and energy by abandoning the separation of functions within the urban fabric. With improved accessibility of services and production areas, people no longer need to travel to other areas in the city, which should also increase the amount of free time they have. Huta is also a place to contemplate “urban metabolism,” the shift from linear to circular economy, as more than 500,000 tonnes of scrap steel a year is processed here into high-quality steel. In this context, it seems interesting to tap into the potential of using waste heat, i.e. large amounts of heat produced during steel processing, to support the energy balance in the new buildings (e.g. heating).

Project guidelines

Strategic site

Guidelines for the area of the former Warsaw Steelworks and its immediate surroundings:

1. It is important to create conditions that would sustain and develop its production functions and their harmonious co-existence with other urban functions.
2. The former Warsaw Steelworks area needs to be made more open and integrated with the surrounding urban fabric in social, spatial, and transport terms, while preserving its production function and satisfying the requirements related to human safety and environmental protection for locations situated near industrial areas.
3. It is crucial to take advantage of the great accessibility of the strategic site for individual and public transport, and of the opportunity to develop it in the strategic site.
4. From the perspective of its current and future users, the whole area needs to sustain the existing, and create new, public spaces.
5. The natural environment needs to be looked from a global perspective to sustain the existing, or create new, links in the form of green routes.

Project site

The new development should be aligned with the socio-economic ecosystem of Huta, taking advantage of the active industrial plant and the material and social heritage of the former Warsaw Steelworks.

General guidelines for Zones B and C within the project site:

Programme. Participants are expected to submit proposals of diverse development programmes that take into consideration many various functions to create an inspiring, harmonious and dynamic place for work, living and recreation. The choice of specific functions (residential, production, recreation, or other) is left at the Participants' discretion. What is important are the relationships between the new and existing functions in terms of both possible synergies and conflicts.

Identity. The Steelworks has been the basis for the identity of the district and its residents, who used to work in the industry for years, as well as future generations of steelworkers. It is important to creatively tap into this intangible potential.

Public spaces should be the backbone of the new, friendly, and accessible neighbourhood, open also to the people living in, or using, the surrounding areas.

Borders. The future development of this area should consider its natural and artificial borders, limits and buffer zones which separate areas with different functions, and minimising such inconveniences as noise. Whatever their form, green areas, buildings, or landscape, these should not become barren, empty, or dangerous areas.

Specific guidelines for Zones B and C:

Zone B

- Zone B should be developed on a temporary basis, for no more than the next 15 years, so that industry can be brought back to this area in the future. Currently, there are no preferred functions for this Zone, other than it being non-residential.
- It is up to the Participants to evaluate the existing post-industrial facilities and storage areas, and decide to either redevelop or demolish them.
- It is important to take into consideration the transport and infrastructure links between production Zone A and Zone B across Kasprowicza St., including the existing industrial siding and gas pipe.
- The other elements of the industrial infrastructure which are crucial for ArcelorMittal, such as its electrical substation and air-separation plant, must be preserved.

- No buildings for permanent use by people should be designed within 300 m from the air-separation plant.

Zone C

- Zone C may be developed on a permanent basis. No exclusion is made to the residential function.
- Consider the possibility of integrating Zone C with its neighbouring Placówka estate to reconcile residential and production functions.
- Take into account environmental considerations, including the potential offered by the existing trees, to create a green route along the north-south axis, as well as the soil contamination under the existing scrap yard.

Good luck!

Steel Plant Ecosystem

Commissioned by the Architecture & Spatial Planning
Department of the City of Warsaw.

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