Kaunas University of Technology

Faculty of Civil Engineering and Architecture

Development of the Territory of Former Military Base in Karmėlava

Master's Final Degree Project

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Supervisor

Kaunas, 2024

Kaunas University of Technology

Faculty of Civil Engineering and Architecture

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Architecture (6211PX026)

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Development of the Territory of Former Military Base in Karmėlava

Declaration of Academic Integrity

I confirm the following:

1. I have prepared the final degree project independently and honestly without any violations of the copyrights or other rights of others, following the provisions of the Law on Copyrights and Related Rights of the Republic of Lithuania, the Regulations on the Management and Transfer of Intellectual Property of Kaunas University of Technology (hereinafter – University) and the ethical requirements stipulated by the Code of Academic Ethics of the University;

2. All the data and research results provided in the final degree project are correct and obtained legally; none of the parts of this project are plagiarised from any printed or electronic sources; all the quotations and references provided in the text of the final degree project are indicated in the list of references;

3. I have not paid anyone any monetary funds for the final degree project or the parts thereof unless required by the law;

4. I understand that in the case of any discovery of the fact of dishonesty or violation of any rights of others, the academic penalties will be imposed on me under the procedure applied at the University; I will be expelled from the University and my final degree project can be submitted to the Office of the Ombudsperson for Academic Ethics and Procedures in the examination of a possible violation of academic ethics.

Arnas Džiaugys

Confirmed electronically

Kaunas University of Technology

Faculty of Civil Engineering and Architecture

Topic (thematic) of the Master's Final Degree Project Development of the Territory of Former Military Base in Karmėlava

The topic of the Master's Final Degree Project is approved by the Dean's Order Development of the Territory of Former Military Base in Karmėlava

Master's **Final Degree Project** (study module M000M168)

T A S K

Objective of the work:

To prepare the Master's final degree project based on the previous stages of the research work.

Tasks of the work:

To connect and summarise the data from the literature sources, analytical paper, research in situ report and experimental project, and prepare the Master's thesis – to present the reasoned solutions to theoretical and practical problems.

Structure of the work:

Text. Title page, heading page, declaration of academic integrity, the task of the final degree project (FDP) (if needed), summaries (in English and Lithuanian), content, list of figures (if needed), list of tables (if needed), list of abbreviations and terms (if needed). Main part: introduction (relevance and novelty of the work, research problem and the level of its examination, object, objective, tasks, and methodology of the FDP); reviewed and summarised data of theoretical research, empirical research and experimental design; conclusions of individual chapters and the entire work. List of references, list of information sources (if needed), appendices, copies of the graphical part (reduced in size).

The volume of the text (main part) is 2 – 3 quires (1 quire is 40 000 characters with spaces), i.e. around **60 – 80 pages** of printed text (recommended font is Times New Roman, size 12, line spacing multiple 1.15 (Methodological Guidelines for the Preparation of Written Works)).

Graphical part.

The graphical part of the work is presented in posters. It should reflect the most important results of the analysis of theoretical material, empirical research and experimental design, as well as general conclusions and proposals. The graphical part of the work should be arranged and exhibited in a way that forms a visually unified whole and reflects the content of the work. It should be attractive aesthetically and visually authentic. When preparing the graphical part of the work, it is necessary to exclude the non-essential information, highlight the most important research results and ideas, and unify the notes, graphical expression, and colours. The most expressive part of the project should be the experimental project, illustrating the conceptual proposals of solutions to problems. The experimental project should make from **3/5** to **4/5** of the graphical part.

The volume of the graphical part is **10-16 posters** of **70x100 cm size** – B1 (vertically oriented). The posters must be printed on **2-3 mm thick cardboard**. Inscriptions of the graphical part should not be smaller than 5 mm in size.

Model or **virtual tour** within the planned area/ designed object or **photorealistic visualisations** of the planned area/ designed object.

Printed and digital copies of the text and graphical part of the final work.

Timetable of the performance of the tasks:

1. Discussion of the task	07 02 2024
2. Constitution of the writing programme of the final work and the work's structure	14 02 2024
3. Supplementation, structuring, analysis and generalisation of the present data	until 20 03 2024
4. Review and evaluation of the supplemented and generalised data	**20 03 2024**
5. Writing of the FDP text and finishing of the graphical part	until 08 05 2024
6. Review of the first edition of the FDP text	**08 05 2024**
7. Defence of the FDP at the commission of supervisors	**15 05 2024**
8. Public defence of the FDP	**03 06 2024**

Consultation time with supervisor

Weekday	**Faculty of Civil Engineering and Architecture, Room 311, Zoom or other distance learning platform**	**Workplace**
	Time and duration *	**Time and duration ***
Monday		
Tuesday	**12:45 (2h)**	
Wednesday		
Thursday		
Friday		

* - 2 hours per week

Supervisor of the final degree project Assoc. Prof. Vidmantas Minkevičius Confirmed electronically
(name, surname, signature)

Student Arnas Džiaugys Confirmed electronically
(name, surname, signature)

February 2024

Džiaugys, Arnas. Development of the Territory of Former Military Base in Karmėlava. Master's Final Degree Project / supervisor assoc. prof. Vidmantas Minkevičius; Faculty of Civil Engineering and Architecture, Kaunas University of Technology.

Study field and area (study field group): Architecture (Arts)

Keywords: Humanisation, development, functional, Karmėlava former military missle base.

Kaunas, 2024. 101 pages.

Summary

There are not just dozens but hundreds of abandoned and derelict sites in Lithuania, which have huge potential for redevelopment and reuse. One such site is the former military missile base in Karmėlava, which symbolises not only the bitterness of the past, but also the current problems of urban development. Although there has been a great deal of attention paid to urban and spatial development in recent times, architecture does not provide additional solutions to the problem of these territories, which do not have a direct source of investment ideas, and the vast amount of abandoned, preserved and disused territories reminds us of the existing problems of urban and architectural development, which are not acceptable to anyone, because such buildings or territories are neither attractive nor do they contribute to a better life for the population. Research has shown that targeted and direct development design guidelines that are not only site-oriented, but also take into account the needs of the population, emotional, social and other indicators, can help to create universal design guidelines that can contribute to the development of attractive and functionally useful spaces and areas.

A qualitative and quantitative empirical sociological survey has shown that purposeful and user-centred design is the most important indicator for successful design, and that taking into account human emotional, social and physical characteristics is one of the quickest ways to make purposeful use of abandoned and disused sites, other focus group, architectural alternatives analysis studies have identified appropriate development directions, population groups, scale, and the main and actual objectives for the continuation of successful development of a site.

The experimental project is based on a conceptual model developed from empirical research, focusing on architectural design based on emotional, social and physical indicators of people. The project consists of three main parts: an analysis and synthesis of the existing situation, a study on the adaptation of alternative design solutions and a study on the application of the generalised model for the development of the complex to test the results of the research. Universal design guidelines are formulated to be applied to the development of similar types of sites and areas.

Džiaugys, Arnas. Karmėlavos karinės bazės teritorijos plėtra. Magistro baigiamasis projektas / vadovas doc. Vidmantas Minkevičius; Kauno technologijos universitetas, Statybos ir Architektūros fakultetas.

Studijų kryptis ir sritis (studijų krypčių grupė): Architektūra (menai)

Reikšminiai žodžiai: Humanizavimas, plėtra, funkcionalios, Karmėlavos buvusi karinė raketinė bazė.

Kaunas, 2024. 101 p.

Santrauka

Lietuvoje galima rasti ne dešimtis, bet šimtus apleistų ir nebenaudojamų teritorijų, kurios turi didžiulį atsinaujinimo ir pakartotinio panaudojimo potencialą. Viena tokių teritorijų – Karmėlavos buvusi karinė raketinė bazė simbolizuojanti ne tik praeities kartėlį, bet ir dabartines urbanistinės plėtros problemas. Nors pastaruoju laiku yra skiriamas ypatingai didžiulis dėmesys miestų ir erdvių plėtrai, tačiau architektūra nesuteikia papildomų problemos sprendimo būdų būtent tokioms teritorijoms, kurios neturi tiesioginio investicinės idėjos šaltinio, o toks didžiulis kiekis apleistų, paliktų konservuotis ir nebenaudojamų teritorijų primena ir neleidžia pamiršti apie esamas urbanistinės ir architektūrinės raidos problemas, kurios niekam nėra priimtinos, nes tokie pastatai ar teritorijos nėra nei patrauklūs nei prisideda prie geresnių gyventojų gyvenimo sąlygų. Atlikti tyrimai parodė, jog tikslingos ir tiesioginės plėtros projektavimo gairės nukreiptos ne tik į teritoriją, tačiau atsižvelgiančios į gyventojų poreikius, emocinius, socialinius ir kitus rodiklius gali padėti sukurti universalias projektavimo gaires, kurios galėtų padėti plėtoti patrauklias ir funckionaliai naudingas erdves ir teritorijas.

Kiekybinių ir kokybinių empirinių tyrimu metu atlikta sociologinė apklausa parodė,jog tikslingas ir į vartotoją orientuotas projektavimas didžiausią indėlį į sėkmingą projektavimą turintis rodiklis, o atsižvelgimas į žmogaus emocinius, socialinisu ir fizinius rodiklius yra vienas greičiausių būdų tikslingai panaudoti apleistas ir nebenaudojamas teritorijas, kitų tikslinės grupės, architektūros alternatyvų analizės tyrimų metu nustatytos teritorijai tinkamos plėtros kryptys, visuomenės grupės, mastelis, bei pagrindiniai ir faktiniai tikslai sėkmingai teritorijos plėtrai tęsti.

Eksperimentinis projektas remiasi empirinių tyrimų rezultatais parengtu koncepciniu modeliu, orientuotu į architektūrinį projektavimą paremtą žmonių emociniais, socialiniais ir fiziniais rodikliais. Projektas sudarytas iš trijų pagrindinių dalių – esamos situacijos analizės ir apibendrinimo, alternatyvių projektinių sprendimų pritaikymo studijos ir apibendrintos komplekso plėtros modelio pritaikymo skirto patikrinti tyrimo rezultatus studija. Formuojamos universalios projektavimo gairės skirtos pritaikyti panašaus pobūdžio teritorijoms ir vietovėms plėtoti.

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List of abbreviations and terms

Abbreviations:

Assoc. prof. – associate professor;

Terms:

Status quo – defined as the existing state or situation, almost always with no room for change.

Phenomenology – phenomenology is the philosophical study of the structures of consciousness from a first-person perspective. In terms of architecture and design, phenomenology is the study and exploration of the physical experience of buildings, building material, and their sensory properties. (Coming back to our senses: What is Phenomenology in Architecture, 2022)

Functionalism – an architectural philosophy that suggests that architects should design buildings and structures based solely on their function and nothing else.

Tactile simulation – refers to using touch to promote a positive or negative sensory experience.

Deconstruction of line movement – the visual and physical tracking and deconstruction of lines as elements of movement to create new or additional forms or expressions to be applied in the architectural design phase.

Architectural metabolism – the post-war architectural movement originated in Japan, a movement that combined ideas of architectural megastructures with ideas of organic biological growth.

Introduction

The extent of the remaining former military infrastructure from the Soviet occupation has been largely overlooked, despite numerous written sources describing it as a significant ecological and architectural disaster to Lithuania. The facts show that the military infrastructure in Lithuania was developed without any hint of any kind of restraint and even from 1940 onwards, the Soviet army was given territories in Lithuania to use for its own purposes, and because the Soviet army was not restrained and because of the ecological problems it caused, the entire military infrastructure that remains today has been laid out in a completely irrational and totally inappropriate way. (Kšanytė, 2003)

Before Lithuania regained its independence, the damage to land, architectural and cultural heritage was enormous, with vast areas of landscape destroyed, groundwater and rivers polluted with chemicals, and could only have been prevented by the public and the Lithuanian authorities of the time. Although there were many intentions and proposals to take greater account of the planned military infrastructure, all of this had to be done at Lithuania's expense, and the government of the time had no choice but to comply with Soviet demands. Huge areas and territories were designated as areas to be used by the Soviet Union's army, with the result that, even today, a large part of the territories have not been used and the damage has not been restored.

Even in today's context, very little attention is paid to solving the problems of development of former Soviet military bases and infrastructure. Abandoned areas in the countryside have been left to decay, and many of the former buildings have deteriorated or been vandalised. Such areas are not only a burden on the state and cities, but also on society, and it is therefore necessary to make an effort to develop a targeted action plan to ensure and enable the successful revival of these types of areas.

Topic relevance and issues: Lithuania, like other post-Soviet states, is grappling with the legacy of the Soviet era - abandoned military infrastructure is a painful reminder of a difficult past..Territories of this size, such as the former Karmėlava military missile base, not only have a negative impact on the overall landscape framework, but also do not have any direct ideas for the development of architectural interventions, and are therefore usually limited to business and industrial development, which, although the easiest option for the development of such areas, is not a sustainable and people-oriented development, and therefore it is necessary to take into account the additional development opportunities in order to develop this type of territory in a targeted and balanced way. Therefore, by developing an appropriate and targeted development strategy for the Karmėlava base area, while at the same time making complementary architectural interventions in the same type of abandoned areas and bringing them back to a new purpose and use, it is possible to create guidelines for the development of functional, sustainable and well-balanced areas, and the successful redevelopment of Karmėlava can serve as an example of the revitalisation of similar abandoned spaces, demonstrating the potential of transformative change.

Aim of the work: To prepare a development plan and feasibility study for the former military missile base site in Karmėlava, to test the guidelines and to apply the results of empirical and theoretical research. The essence of this work is to find out and better understand how users value architecture, to understand how it can influence their daily choices, to study in more depth the

physical, emotional and biological indicators and to apply them in the development process, creating a strategically targeted framework for the humanisation of the former military base in Karmėlava.

Objectives of the work:

- Carry out an assessment of the functions, connections and systems of the military, and to prepare theoretical studies to determine the feasibility of the development of the former Karmėlava military base;
- To develop a hypothetical model for the development of the former military missile base in Karmėlava;
- Verify the propositions of the hypothetical model on the basis of the empirical studies carried out and their results;
- Provide a conceptual model for the development of the former military base in Karmėlava;
- Develop an experimental project for the humanisation and development of the former military base of Karmėlava;
- Formulate guidelines for the development of the former military base in Karmėlava, which could be used as a framework for the advancement of other former military bases or derelict sites;

Research object:

Development and humanisation of the territory of the former military base of Karmėlava.

Methodology of work.

- Theoretical research – collection and analysis of theoretical material, sistemisation and filtering of information.
- Empirical research – sociological survey, focus group research, analysis and comparison of architectural elements, research on architectural form and expression based on the methods of manipulation of forms, movement of lines and deconstruction.
- Experimental project – adapting and validating the design guidelines set out.

The workflow.

The final Master's thesis examines primary and secondary literature sources and conducts in-depth research to analyse architectural examples of the conversion of former military bases. In addition, the study delves into the metaphysical and psychological aspects of architecture, examining their impact on human experience and well-being in these transformed spaces. An empirical study is carried out to assess the development potential of the former Karmėlava military base area, taking into account physical and psychological aspects. Based on the theoretical foundations and the results of the empirical study, an experimental project is being carried out - the elaboration of a strategic plan for the revitalisation and revitalization of the territory of the former Karmėlava military base. The project aims not only to follow architectural design guidelines, but also to improve the holistic well-being and experience of those interacting with the space.

Novelty of the work: Research specifically focuses on the interaction between architecture and psychology, a subject that has received little or no research in the field of architecture. This study seeks to purposefully highlight and understand how architecture can influence people's psychological feelings and behaviour. Although the results of the study can be interpreted in different ways, they

underline the important link between environmental design, psychological factors and societal well-being, which has allowed the study to identify new opportunities for the development of new and innovative architectural solutions that take into account people's needs, well-being and general psychological indicators. The results of the study can be used as a direct reference material and the architectural model can be used as a template for the development of areas and sites of this or similar nature, or in general throughout the process.

Structure of the paper.

The final Master's thesis consists of an introduction, three main parts (theoretical research, empirical research and experimental design), a summary of the final Master's thesis - conclusions, a list of references, and 6 annexes. The thesis cites 56 literature sources, presents 66 figures and 22 tables. Scope of work: main text: 81 pages and 8 appendices.

Chapter 1 focuses on the theoretical foundations of the military disciplines, exploring their multifaceted role in society. It examines the structure and functions of the military, highlighting its importance and its links to wider societal dynamics. In addition, the chapter delves into architectural theories such as functionalism and phenomenology, exploring their applicability to the development of the former military base at Karmėlava. By analysing the positive and negative factors associated with these architectural ideologies, the aim is to develop a targeted and equitable development plan for the site. In addition, the chapter examines the states of development of psychological indicators and considers how architectural design can elevate not only the physical but also the spiritual aspects of a space. Such a holistic approach to design is promising as it can be used for the development of territories, fostering a deeper connection between people and their built environment.

Chapter 2 focuses on the results of the empirical study and their detailed analysis in order to draw key findings from the data collected. Starting with the results and insights from the sociological survey, the chapter proceeds to the results of a tactile simulation study adapted to the target group. The chapter then explores the different architectural alternatives in relation to the initial hypotheses and design guidelines. Additional research is also conducted, exploring architectural expression and form, analysing the deconstruction of linear movement in order to create a balance from asymmetry. The synthesis of the results of these studies is summarised in the development of a conceptual model for the strategic regeneration of the former Karmėlava military base area. This chapter is an important step towards translating the results of the research into implementable strategies for the revitalisation of the site.

Chapter 3 focuses on the application of the results of Chapters 1 and 2. The chapter identifies problems and solutions, and looks in depth at possible applications, methods and architectural elements. It also scrutinises the existing conditions of the site, including its infrastructure and the relevant factors that could positively or negatively influence the course of its development. It also critically evaluates the previously proposed development alternatives for the site, highlighting their strengths and weaknesses, in order to provide an effective basis for the material for the final design phase. The chapter concludes with a thorough review of the findings and the formulation of experimental guidelines for the development of similar types of sites in order to humanise them and adapt them to new uses.

1. Theoretical intersection and principles of military Architecture and Architectural idologies and theoretical study of the territory of the former Karmėlava missile base

Architecture and war, war and architecture are seemingly two very different and fundamentally incompatible things. However, neither is confined to its own direction, but rather influences not only our daily choices but also our future plans. As architect Lebbeus Woods (1993) states - "Architecture and war are incompatible. Architecture is war. War is architecture". War can be seen as the inevitable architecture that forcibly changes our lives, attitudes, and turns everyday concerns into trivial problems. Military architecture is characterised by a non-personal language and abstract design aesthetics, which are tailored to functionality and defence, to the promotion and development of monumentality and propagandistic forms, rather than to the promotion and conveyance of individual distinction or personal expressiveness. Military ideology and architecture, however, is designed to exalt monumental purpose, to promote functionality and order, to embody freedom of place without choice.

As Paul Virilio (1998), an architect who studies bunkers and military architecture, states - " I was most impressed by a feeling, internal and external, of being immediately crushed" However, military ideology can be said to crush the monumental human spirit, both externally and internally. However, this imprisonment of man's natural spirit is also characteristic of architecture, in particular functionalism, which, under the guise of the functional freedom of everyday decisions, secretly imprisons man in a prison of his own making. According to Carl Von Clausewitz, we can see military ideology as an extension of politics and architecture as its tool.

A distorted assessment of military architecture can be seen as a result of the lack of information dissemination and generic knowledge in society. Although the direct ideological link between architecture and the military is almost non-existent in Lithuania, it can be argued that this may be one of the main results of the Soviet occupation, which led to the current situation and exclusion. Traditionally, architecture is supposed to shelter and promote cultures, traditions, values or a sense of security. The military and its ideology follow a very similar principle, to provide a sense of security, but, on the other hand, such a sense of security and as stated by Lebbeus Woods it can also be seen as a symbol of security, which can sometimes be enough to reassure the public or to answer one question or another and ultimately can only be left as an illusion that will not protect us.

What is meant by this is that, if they work together, military architecture, like architectural ideology, cannot be presented separately to the public as two separate entities working on their own, because they are a direct reflection of each other's ideas and aspirations. Secrecy is also inherent in the former military missile base and its territory in Karmelava, and based on the information gathered and the sources and stories, it can be said that the existence and functioning of the military base at that time was not 100% confirmed, as historically these types of bases and territories were located in the territory of the then Soviet Union, as a muliage to divert attention away from the real missile and military bases. However, it is important to note that the military bases of the time were based on a single design principle, which may not have taken into account architectural and ideological principles. As Daniel Libeskind says, that "the military wants a certain amount of secrecy and confidentiality, but in the end, you can't separate architecture and the military's understanding. You can't design anything without understanding the psychological impact it can have on people".

Although the spheres of influence of the military and architecture are distinct and do not operate under the influence of direct external factors, there are many different reasons why both ideologies and types of architecture are the result of the exaltation and the reduction of human monumentality.

1.1. Concept, functions and system of the military in Lithuania.

Although the Lithuanian Armed Forces have always been an integral guarantor of the security of the society and the country, in recent years the name of the Armed Forces has taken on an even more important and completely different meaning. With the war in Ukraine now in its third year, the aggressive and unpredictable actions of neighbouring countries and the tense geopolitical situation, the Lithuanian Armed Forces have become one of the most important elements of everyday life and public debate. In 2023, 'Baltijos tyrimai' conducted a survey and asked the public about their trust in various institutions of the country. The results showed that as many as 80% of the respondents trusted the Lithuanian Armed Forces, 15% had no trust, and 3% did not express an opinion, which indicates that trust in the Lithuanian Armed Forces has not been this high since 1996. (Lrt.lt, 2023) Moreover, according to the results of a survey commissioned by the Ministry of National Defence of the Republic of Lithuania, as many as 61% of the respondents would contribute to peaceful resistance, while 53% of the respondents, of which as many as 8% would organise resistance with weapons and 45% would contribute to it. (Kariuomene.lt, 2023)

The results of the surveys show that the public is not only concerned about the national security of the country and themselves but is increasingly willing to learn more about the functions, operations, importance, and public relations of the armed forces. While the results show a growing public interest and confidence in the army and the military profession, it is also important to understand the historical motivations and events that led to the creation of the current structure, which will allow the research to shed more light on the military's functions, concept and system. In order to maintain historical continuity and relevance, the study is based on sources and books from 1950 and later, as well as on facts collected in those and subsequent years. With regard to historical sources, it is very crucial to note that this research is based on the data and records from 1950 onwards, as well as on facts gathered in later years. One of the key events in the history of Lithuania was the fight for independence and recognition of the state, during which the government was faced with the enormous challenge of withdrawing Soviet troops from the country. (Balaišis A and Surgailis G, 2005). According to the documents collected, the Soviet army had occupied more than 1.2% of the territory of Lithuania, or 68 000 hectares (Balaišis A and Surgailis G, 2005). To put this in perspective, the cities of Kaunas and Vilnius cover an area of 558 km^2, suggesting that the size of the territory occupied by the Soviet army was truly enormous. Meanwhile, the area covered by the former military base in Karmėlava is approximately 67.67 ha.

Transitioning from the historical context to the practical challenges faced by the Lithuanian government, it becomes apparent that the scale of the task was immense, according to sources there were 34.6 thousand troops, about 1000 tanks, 180 airplanes, and 1901 armoured personnel carriers stationed there on January 1, 1992, although due to the part of the events that were not recorded at that time it is difficult to tell the exact number of soldiers and equipment in the territory (Balaišis A and Surgailis G. 2005). Achieving this goal therefore required a number of steps to ensure the successful withdrawal of the occupying forces. And only just then after the fourth phase which lasted from 1 July 1993 to 31 August 1993 the new and revitalised formation of the Lithuanian Armed

Forces started (Balaišis A and Surgailis G. 2005). It is also important to highlight the fact that all four phases:

- The first stage that went from 8 September 1992 to 31 December 1992.
- The second stage that went from 1 January 1993 to 31 March 1993.
- The third stage that went from 1 April 1993 to 30 June 1993.

the fourth phase mentioned above were milestones in the course of the re-establishment of the independent Lithuanian Armed Forces, which not only led to a purposeful development but also to the formation of a new function, system and concept.

Before reviewing the changes and function of the army, it is important to mention the main object and territory of the research - the former missile base in Karmėlava. Although, as the investigation has shown, and the sources state, that a large part of the handovers that took place during the phases were not documented, it is therefore difficult to determine exactly what the missile base was and when it was handed over to Lithuania, but according to the report of the 27 November 1992 - "On the distribution and transfer of the former objects of the Russian Federation army located on the territory of the Republic of Lithuania to the ministries and municipalities", it was established that the Karmėlava 1 and Karmėlava 2 objects and military units were transferred to the Ministry of Communications. (See **Fig. 1**). The information gathered also suggests that the base had been in operation since 08-01-1962 and that Lithuania took it over around 1990. (Balaišis A and Surgailis G. 2005)

Karmėlava 1 Karmėlava 2	karinė dalis 83301 karinė dalis 73525, 75417, 78408, 83468	Susisiekimo ministerija "

Fig. 1. Extract from the Resolution document - "On the allocation and transfer to ministries and municipalities of the former military objects of the Russian Federation located in the territory of the Republic of Lithuania" (Balaišis A and Surgailis G. 2005)

8.	Kauno raj., Karmėlava	ODK dalinys (k/d 18352)

Fig. 2. Extract from the Order - "On Appointment of Persons Responsible for Taking Over Objects from the Military Units of the Russian Federation and for Organising Their Protection" (Balaišis A and Surgailis G. 2005)

The analysis of the sources shows that there is little or no information on the existence and functions of the Karmėlava missile base, and the existence of such a military unit in Karmėlava is evidenced only by the decree documents and transfer orders found during the research. As mentioned above, the re-establishment of the Lithuanian Armed Forces began around 1990, at the same time as the Soviet Union, unable to accept defeat, imposed an economic blockade on Lithuania in April of the same year, under which conditions the national defence was formed (Kariuomene.lt, 2023). Gaidys (2018) argues that after 1992, the Army of the Republic was re-established with a land force, and by the end of the same year, the growing National Defence Volunteer Forces became the cornerstone and the main basis of the Lithuanian army. According to sources, this was the basis for

the composition of the current Lithuanian army. Although the concept of an army is almost uninterpretable among general terms, since the main purpose of such a force is to protect the country and society from internal and external threats, there is no doubt and it can be argued that this is the only and almost the main function of the army. Also, the main and additional functional units of the Armed Forces have evolved out of the aforementioned Volunteer Reserve. (Gaidys, Knezys, Spečiūnas, 2018). According to the then idea of rebuilding the army, on 22 February 1991 the first training unit (Rapid Reaction Brigade) was established, and on 6 June 1992 the 1st Motorised Land Brigade Iron Wolf was established. Based on the sources, this brigade became the basis of the Land Forces at that time. As Gaidys and Knezys (2018) argue, it was only in 1992 that the restoration of the Lithuanian Armed Forces was legalised by an act of the Seimas of Lithuania, and it was also in that year that the two larger battalions of the Vaidotas and Butigeidis Dragoons were created, which were supposed to further increase the scope and power of territorial defence and the military, and the Air Force and the Naval Forces were created in 1993 and 1995 respectively. In addition, in the same year, the Vytenis Logistics Battalion was created, and in 1995 an additional Engineering Battalion. (Gaidys and Knezys, 2018) **It has also been established that one of the main functions of the army at that time was territorial defence**, on the basis of which the then resurgent independent Lithuanian military was being trained and prepared. However, based on the sources, it can be argued that the training, function, infrastructure and weaponry of the army of the time was identical to that used by the occupiers, i.e. the former Soviet Union, now the Russian Federation. This meant that building a new system, buying newer and better weapons, increasing the size of the army and improving the infrastructure would take time, as well as a lot of not only human but also state financial resources, in order to achieve a higher level of military.

Although the level of the Lithuanian Armed Forces was very low, from 1994 onwards, the decision was taken and preparations for joining NATO began, at the same time as military procedures and standards, training programmes, and additional upgrading of weapons were introduced based on the NATO countries. Although by 2004 Lithuania had received much newer equipment and weapons, and had started procurement procedures for air defence and anti-tank systems, a major breakthrough was only seen after Lithuania joined NATO in 2004 (Gaidys A. and Knezys S, 2018). NATO accession has contributed significantly to the development and transformation of a faster, more focused and technologically advanced army. It has allowed soldiers to acquire additional knowledge, to participate in international exercises, to familiarise themselves with Western technology and weaponry, and to become familiar with training standards. **For Lithuania, joining NATO directly meant a change in the role and function of the armed forces, from territorial defence to collective defence, as well as further enhancing Lithuania's security at the geopolitical level**. Figure 3. shows the military units of the Lithuanian Armed Forces and their spheres of activity that have been finally formed and fully trained after accession to NATO.

The Lithuanian Armed Forces are now no different in concept from the other NATO nations and their militaries, which is the result of steady and purposeful work and the desire to be visible, strong and independent. Although the concept of the Lithuanian Armed Forces is the security and defence of the country, the training of soldiers and professionals, it also contributes directly to public information and the organisation and execution of work to assist the government in emergency conditions.

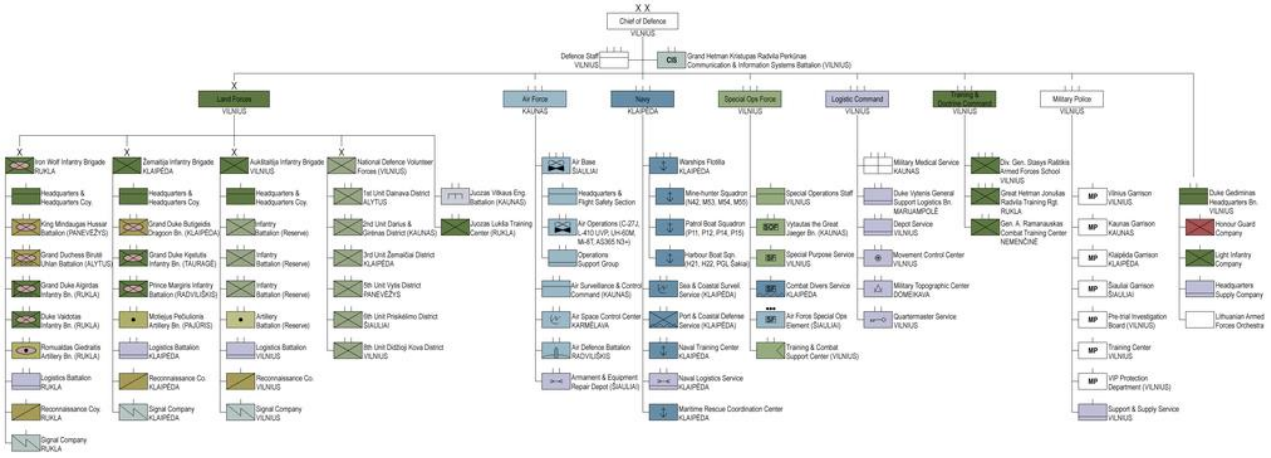

Fig. 3. Structural chart of the Lithuanian Armed Forces (Kariuomene.lt, 2023)

Figure 3 identifies the main components and units of the Lithuanian Armed Forces, the diagram also shows the systemic components - land forces, navy, special operations unit, logistics centres, training and education complexes, and an additional military unit - the Military Police, each of which plays a very important role in the military system, and on which depends not only the defence plan of the country, but also the adaptation of the whole system in Lithuania. Sources also suggest that in order to maintain an efficient and purposefully planned system, the Lithuanian Armed Forces often undergo a series of reforms that are intended to reduce unnecessary posts, merge or create new units, and revise the existing weaponry and equipment. (Kariuomene.lt, 2018)

After analysing this information, we can identify a clear concept, system and functions of the Lithuanian Armed Forces not only related to the country, but also closely related to society. Particularly in this politically very difficult period, experts and the public agree on the need to increase and strengthen defence and its financing, to learn from current examples, to modify and improve the principle of conscription and to develop more targeted public communication, presenting to the public all the possible threats and ways of protecting against them.

1.2. The psychological factor of the military essence, the adaptation of bases through the theoretical doctrines of architectural ideology

There are at least 5 major strategic and infrastructural training ranges on the territory of Lithuania – Gaižūnų, Kazlų rūdos, Pabradės, Rūdininkų (see **Fig.4**), and more than 30 different infrastructure and military command facilities throughout Lithuania. All of these strategic facilities and territories form an important defence and national security network; however, it is important to note that, especially in today's political context, it is not uncommon for citizens to express concern about the movement of large amounts of military equipment and troops on the territory of Lithuania, which can be attributed to the fact that the ongoing war in Ukraine is a direct consequence of this.

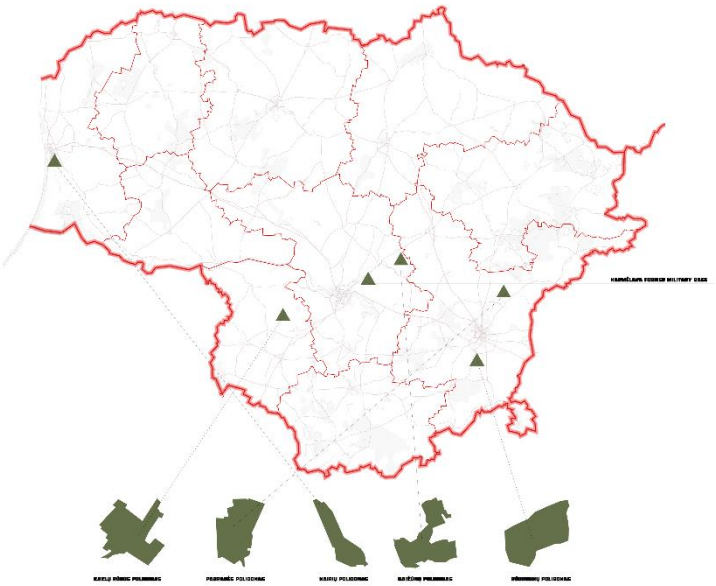

Fig. 4. All major military ranges in Lithuania. (Džiaugys, 2024)

However, it is important to note that while the military is a positive element in the preservation of a successful and secure society, the negative aspects of the military's existence are equally and proportionately challenged. Graham (2010) identifies such factors as the new military urbanism, which is directly reflected in the everyday activities and life of society. While war is not directly a daily occurrence - the fight against drugs, violence, theft, crime - on a larger scale, war is a tool to control society, which can be described as a limitless and dominant condition of urban society. At the heart of the new military urbanism is a paradigmatic shift that makes urban communities and private goods, as well as infrastructure, along with civilian populations, targets and sources of direct threats (Graham S, 2010). Although the previous part of the study found (see **fig x**.) that 80% of the public supports the military and its activities in the state, public concerns about the possible consequences of the expansion of the military and infrastructure in the state are often highlighted. This is why it is very difficult to determine an accurate and fair assessment of the existence of the army based on clear arguments and facts, rather than on fears and apprehensions. Without considering people's psychological perspectives on war and the existence of the military, it can be argued that the new military urbanism identified by Graham is a direct consequence of the discourse in the local systems of urban geography and the systems that connect them.

According to Graham (2010), new military urbanism has created additional and new spaces and fields of war, and now everyday urban places, movements and spaces are becoming key 'battle spaces' both at home and abroad, and military doctrine is being rapidly rethought to reflect the principle of the new war. This is why the existence of the military in society can be assessed on the basis of Graham's statements:

- The public is noticing and analysing in a targeted way the possible threats of the new urbanism and the military's part in it.
- The public may be involved in a political game that is intangible to them and which is often not noticed or directly evaluated.
- The public's concerns are correct about the 'new' war spaces and territories created by new urbanism.
- Everything that is done in everyday activities becomes, or can become, a tool and a target in war.
- Human psychological resources are very limited in the face of war.

It is at this point that a clear distingction between society and the military is visible and an evolution that involves the clandestine militarisation of various political debates, urban landscapes and infrastrucural circuits, and entire areas of pupular urban culture, is taking place. (Graham S, 2010)

Like the military, architecture is also characterised by the purposeful use of ideological doctrines, which directly shape and influence public attitudes and everyday activities. The infinite possibilities created by words and physical attributes have cultivated a new immutable set of perceptions with new needs, different attitudes and visions of the environment, and have created a metaphysical filter in the matter that surrounds the user. Everything that comes and is understood by the user must be seen only as a vision created by a certain architectural idea ruled by ideological sense, behind which lies a process with a certain purpose and aspiration. It has become evident that the ideologies analysed in this study, such as phenomenology and functionalism, have together created an emphatic statement about the possibility of manipulative, open, new and innovative solutions in architecture.

It can be argued that it is the principle of classification that can be used to group military and architectural ideologies and their influence on society:

- *The influence of the military on society is direct and measurable.*
- *The influence of the military, which is not visible and not directly measurable, is either positive or negative for society.*
- *Direct influence of architectural objects and ideologies on society and consumers*
- *Direct influence of architectural objects and ideologies, positive or negative.*

Based on the classifications, the assessment of the feasibility of the development of a military base can be made not only from the selected functional side, but also by assessing the influence and potential of additional different factors. One of these is the synthesis of embodied life principles in architecture based on scientific principles. However, such an assessment and implementation are very fragile due to the unclear and unanalysed limits of the user.

One such prism is that of understanding functionalism, which in one way or another can be embodied in architectural objects through decisions on the metaphysical and philosophical spectrum that are forced to achieve the required outcome and the user reaches the set limits of perception (Markey-Towler, B, 2018). Functionalism can therefore be seen as a bridge between contemporary

architecture. In the same manner, the metaphor of "Architectural Metaloblism" can be seen as summarising an equivalent ideological scale of decisions embodied in architectural objects and denoting the "void" between the user and architecture. (Gropius W, 1919). Which can be interpreted as understanding all the components of the architecture in the same way, even in different contexts.

Functionalism as an architectural doctrine allows for the creation of architectural objects with strict forms and purposeful functional significance, without the possibility of interpretation, which is precisely the architectural morphotype that is often seen in military architecture, where there is a clear and visible connection between the intersection of different doctrines and ideologies, which expresses the common goal of controlling and confining human beings to an ideological frame.

Unlike Functionalism, Phenomenology as a doctrine is diametrically opposed to an ideology that seeks to provide the user with new possibilities for discovery and experience. As Steven Hall (1994) states - "Anyone who has become entranced by the sound of water drops in the darkness of ruin can attest to the extraordinary capacity of the ear to carve a volume into the void of darkness. The space traced by the ear becomes a cavity sculpted in the interior of the mind". This statement can also be developed in the sense that the use of phenomenology in architecture creates new ways to go beyond the physical boundaries of the user, creating a new way of experiencing architecture that develops the senses to examine even the smallest details of the design and the idea.

Although the clear and noticeable connection between military architecture and phenomenology is broken here and not apparent, it is important to stress that this does not mean that functionalism as an ideology, and the elements it embodies, are better than phenomenology, quite the opposite in fact, as Christian Norberg (1979) argues - Contemporary architecture is too abstract to survive and needs more complex, flexible phenomena to take hold, for example : Phenomenology driven and newly created styles, on the other hand, ideologies force architecture to frame the user in an "architectural metabolism" with a rapidly increasing intervention of force in the human mind and architecture, which affects the emotional, sensory and physical relationship between the user and architecture.

In order to identify the possible uses, it is important to identify the main and essential ideas of the different doctrines:

Functionalism: Re-ordering of architecture and society, clear and functional forms and spaces, new standards of design and living, closedness outside and inside, limited space for improvisation.

Phenomenology: Ease and freedom, complementary and new ideas in design and architecture, freedom of choice and experience for the user, the possibility to experience architecture from the inside and not only on a physical level, forms and elements that make us want to experience and discover new experiences.

Although phenomenology answers all the questions necessary for the purposeful and successful development of the former military base area of Karmėlava, these differences do not determine the relevance of one or another architectural ideology, but rather test the elements and ideas that could be used to create the right kind of environment and architecture that is close to the user and that works functionally.

1.3. Feasibility study for the development and design of alternative sites for former military bases and training grounds

A detailed analysis of the functions, system and concept of the military in Lithuania, as well as an analysis of available and found historical sources and documents that had a direct influence on their formation, suggests that one of the main goals of the country and the Armed Forces is the purposeful and effective improvement of the infrastructure and the development of highly qualified personnel to strengthen the country's national security. However, the facts show that some of the remaining old and disused military facilities are still a challenge not only for cities and suburbs, but also for architects and society. Almost always, such facilities and sites are difficult to adapt to residential, service or other uses because of their location and difficult accessibility. Spaces and infrastructure in urbanised areas that were once military bases, according to Hansen (2004), are pre-made material for the development of airports, universities, and other areas for economic entities.

Every successful public or private facility needs a purposeful and sustainable idea that connects a network of users, whether for functional or emotional value, and a successful space needs a coherent integration of users into the environment. According to Amin and Thrift (1995), such changes are driven not only by the need to improve the living conditions of society and offer more opportunities to live elsewhere, but also by the desire of countries to compete for space in the global marketplace, which has led countries to choose and urbanise old and abandoned sites on a large scale, to renovate them and to give them space for businesses to expand. That is why it is important to understand that the connection between the user and the space is based on methodological and ideological principles that can pinpoint the essential point of that state and sense of place.

- Success Factors (how certain problems were solved)
- Challenges and lessons learned (What went well and what to consider before doing)
- Regional and cultural context
- Suitability of the alternative

1.4. The hypothetical model based on the results of the theoretical analysis and the results intended to guide the empirical part of the study and to substantiate and test the claims made

The hypothetical development model for the former military base in Karmėlava (Figure x) is divided **into four parts**:

- Karmėlava former military base (Territory)
- Problems.
- Development objectives and aspirations.
- Solutions.

All parts answer different questions, but together they form a common set of solutions. The model combines architecture and psychology, military identity, architectural theory and ideology, and identifies the first solutions that can be applied to the development concept to develop and adapt the site to the new use. The hypothetical model also addresses not only architectural but also societal issues, such as the adaptation of such areas to different societies and their desires, the promotion of public awareness and the importance of the development of such areas. It is the targeted sensitisation of the public and informing them about the current situation and its solutions that makes a purposeful contribution to improving the public's relationship with the territory and architecture, improving the

overall situation, promoting the development of towns and cities and solving the architectural and urban problems posed by such territories.

The hypothetical model provides suggestions and answers as to how and in what ways to theoretically develop the former Karmėlava military base:

1. Providing a new function
2. Taking into account the needs and aspirations of users
3. Utilising existing infrastructure
4. Applying architectural theories and ideologies to the development process
5. Identification of problems and their elimination

It is essential to consider that model can work in two different ways – first one, taking into account the metaphysical details of human development, by choosing the appropriate physical and emotional indicators to be improved in the development of the territory by means of architectural elements and the development of their possible new function. This means that the elevation of the relationship between user and space could go beyond the direct physical side of architecture, where the main theoretical solution for the development of the territory is only the continuous and uninterrupted use of ideological architecture. The development of architectural ideologies and their development in internal processes, involving all the parties that have access to the territory.

The second theoretical use and option is the creation of a functionalist image of the territory through solutions based on use of validated alternative object design principles, i.e. using the idea of the urban village to convey the principle of invisible links with architecture and user, to create a fundamental reference value that would leat to the successful development of the area, which then could develop into full scale operation where all related links are transformed in a continuous cycle, where a cycle is seen as a path of non – repetitive and successive development phases.

In summary, both options can be addressed theoretically and physically (Through desing), by selecting and analysing respective architectural theories and ideologies, design principles, needs and aspirations of users, and if done correctly, it would lead to a more precise clarification of the problems and provide with the best possible outcome for the project.

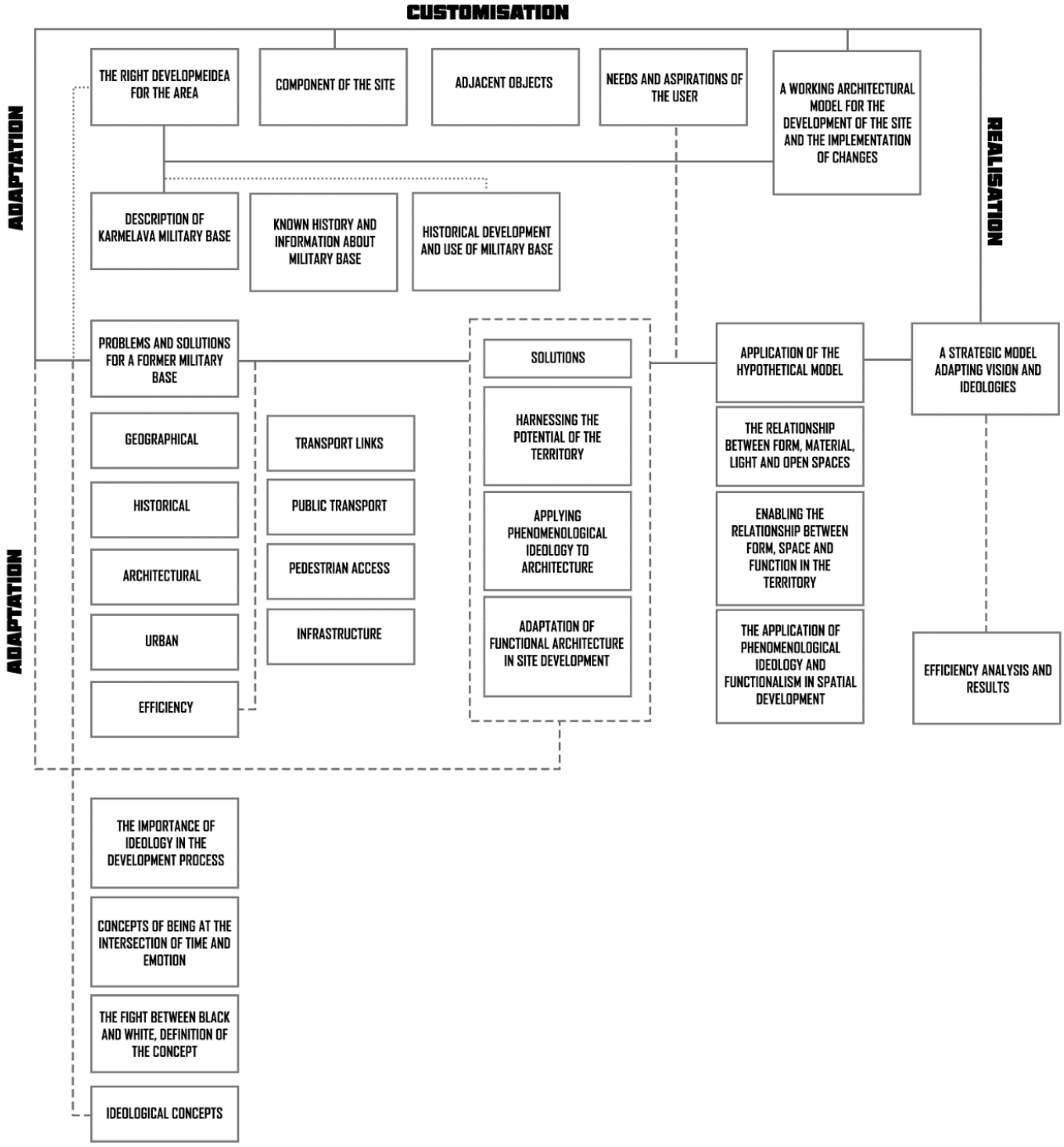

Fig. 5. Hypothetical model of the development of the territory of the former military base in Karmėlava. (Džiaugys, 2023)

2. Empirical study on the development of the Karmėlava former military base

2.1. Working hypotheses and empirical research framework

Table 1. Empirical research programme – research hypotheses. (Džiaugys, 2023)

Nr.	Hypotheses	Objects of the research	Research methods
1.	There is a positive correlation between sensory and emotional qualities in architecture and the level of engagement and appreciation of architectural spaces by users - Sensory qualities that could be associated with emotions in architecture – Visual, Tactile, Auditory, Olfactory, and Gustatory.	Identification of the key physical architectural, sensory and emotional factors that contribute to users' engagement and appreciation of architectural spaces.	Structured questionnaire Focus group research
2.	Incorporating a subtle understanding of human experience and emotions into the design process can improve the efficiency and sustainability of urban development. By taking into account people's subjective experiences and perceptions of the built environment, we can create spaces that are more responsive to the needs and desires of the community, which ultimately leads to more successful and impactful urban design	Identification of the key factors that determine the success and impact of urban design and development, create guidelines to guide and adapt the development of an area in an efficient, more sustainable, and user-oriented direction.	Structured questionnaire. Analysis of architectural theory and validation of the answers based on human – scalled design and environmental psychology theories. Grounded Theory
3.	Prioritising the needs of users in the design process can help to create more efficient and effective urban spaces, and ensure a more focused and broader development of the area, bringing together residential, leisure, and industrial areas	Identifying key factors influencing urban design success and impact. Developing guidelines for efficient, sustainable, and user-oriented area development.	Structured questionnaire. Analysis of architectural theory and validation of the answers based on the theories of Juhani Pallasmaa and Maurice Merleau-Ponty Grounded Theory
4.	The application of architectural ideologies, such as phenomenology, in urban development has the potential to enhance sustainability by promoting a deeper understanding and connection between people and the built environment.	Identify and seek to understand how phenomenology, as a philosophical approach that emphasises the subjective experience of the built environment, can be applied in urban development to create more sustainable and user-cantered spaces.	Structured questionnaire. Architecture building analysis. Analysis of architectural theory and validation of the answers, based on the theories of Juhani Pallasmaa and Maurice Merleau-Ponty.
5.	Taking a comprehensive approach to development can lead to more successful outcomes	Exploring how integrating social, economic, environmental, and cultural factors leads to successful and sustainable development. Analyzing their interconnections to identify best practices for comprehensive developmen	Structured questionnaire. Architecture building analysis. Analysis of architectural theory and validation of the answers.

2.2. Sociological survey on the influence of the architectural environment on the perception of its users, the importance of physical, emotional and social indicators

The anonymous questionnaire survey was completed by 155 respondents with an average age of 24 years. The survey was conducted in two languages of which Lithuanian, which accounted for 76% of the responses, and English, which accounted for the remaining 24%. The survey did not take into account work experience, a field of work, and other aspects related to the profession, in order to standardise the respondents' experience, professions, and other factors that may influence the answers.

Part I – Responses to closed-ended questions.

The respondents' opinion of the importance of architecture in their lives varies according to the results of their answers, with more than 50% of the respondents (on a scale of 1-10, 14.8% rated the importance of architecture as - 10, 12.3% as 9, 11.6% as 8, 9% as 7 and 6,5% as 6) rating the importance of architecture in their lives as positively >5, while the remaining 16,1% rated the importance of architecture in their daily lives as neutral or having no influence on their lives as = 5, and the rest of the respondents rated the importance as <5 and were responsible for the remaining % of the answer options given (For results see **Fig.5**), therefore, based on these initial answer options to the first closed question, it can be concluded that consumers have a positive attitude towards change. Additionally, they exhibit positivity towards their environment. We can also predict a direct correlation between the respondents and the spheres of influence of the surrounding environment based on these response options.

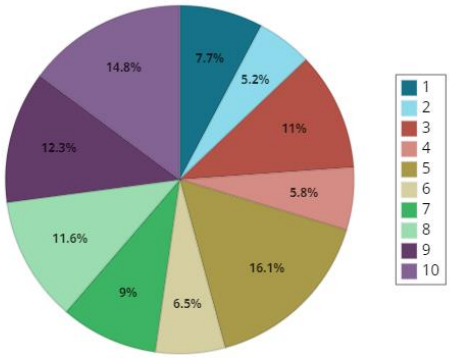

Fig. 6. Users personal feelings about the importance of architecture in their lives.
(10 - being the very important, 1 – being not important). (Džiaugys, 2023)

However, with regard to the next question about the appearance of buildings and spaces, we can see less difference and division between the answers of the respondents. (For results see **Fig.6**) 50.3% of respondents answered that the appearance of buildings and spaces is very important to them, 40.3% answered that it is somewhat important, 4.7% answered that they do not care or they do not have an opinion, while remaining 4,7% answered that it is not important to them or that they have no opinion about the appearance of buildings and spaces. From this, we may assume that the respondents' answer options may be appropriate for relevant reasons, such as the great importance of architecture in their lives, and the importance of the appearance of architectural objects and spaces, which indicates that it is typical for consumers to observe and analyse the changes taking place around them.

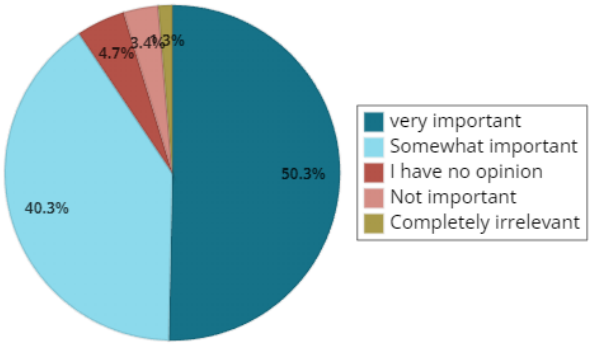

Fig. 7. How important is the appearance of buildings and spaces to you? (Džiaugys, 2023)

When asked about aesthetics and functionality of the buildings, the majority of those surveyed agreed that the functionality of buildings and spaces were important to them (For results see **Fig. 7**) (75,3%), while 22.5% said it was only somewhat important. It is known that the functionality of buildings is directly related to people's desires and preferences and the spaces used by the users, but it can be argued that functionality as a statement is undefined in the current paradigm.

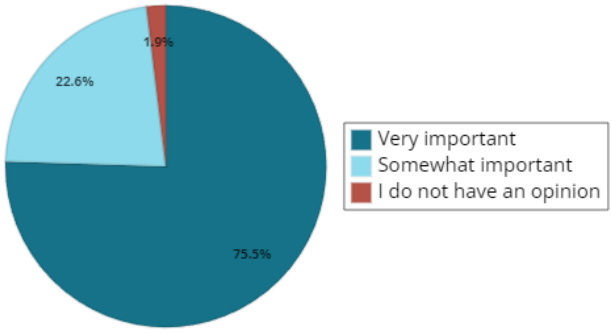

Fig. 8. How important is functionality over aesthetics of buildings for you? (Džiaugys, 2023)

However, it is important to note that the concept of functionality can be somewhat subjective and difficult to define. What may be functional for one person or group may not be functional for another. It is therefore important to consider how people's desires and preferences May influence their perception of functionality, and how this may differ between different groups of people. The results, therefore, suggest that people value the practical aspects of the built environment. However, it is important to further explore how functionality is defined and perceived by different groups of people in order to design an environment that meets the needs and preferences of all users.

It is important to bear in mind that consumers may consider functionality not only as a space that performs a function but also as a space that is practical, aesthetically pleasing, or efficient. When asked to give their opinion on what should be prioritised in buildings - aesthetic design or practicality - the overwhelming majority of the respondents – 83,9% answered that both should be given equal or mutual importance while only 6,5% of the respondents identified practicality as the preferred design element wile 9.7% of the respondents answered that they would prefer to see and prefer aesthetic design. (For results see **Fig. 8**) The results suggest that the best appreciation and understanding of architectural design can only be achieved by striking a balance between efficiency,

practicality, andaesthetic design, which in this case only a very small proportion of respondents would choose as a first option.

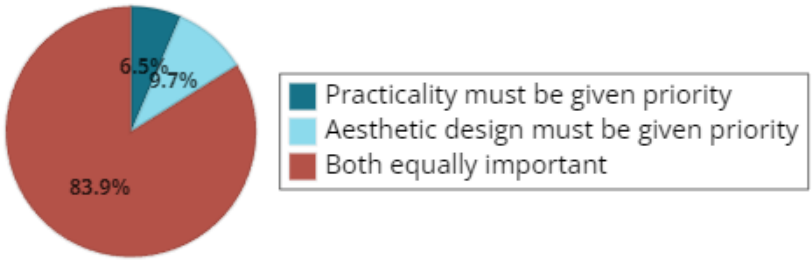

Fig. 9. Do you think that aesthetic design or pracitcality should take precendence in buildings? (Džiaugys, 2023)

To determine the direct connection and relevance to architecture and respondents, respondents were asked to answer the question - "Do you often think about architecture and its importance in your daily life?" (For results see **Fig. 9**) The vast majority of respondents (46.9%) answered that they sometimes think about the importance of architecture in their daily lives, a result that could also be dictated by professional differences, experience, age, and other factors not considered in this survey, It's also notable that a smaller but still significant proportion of respondents 25% think about the importance of architecture often, which suggests that they may have a more active interest in architecture or work in fields related to it, and 28.2% of the remaining respondents said that they do not think about it at all or only think about it when they are in impractically arranged spaces or buildings.

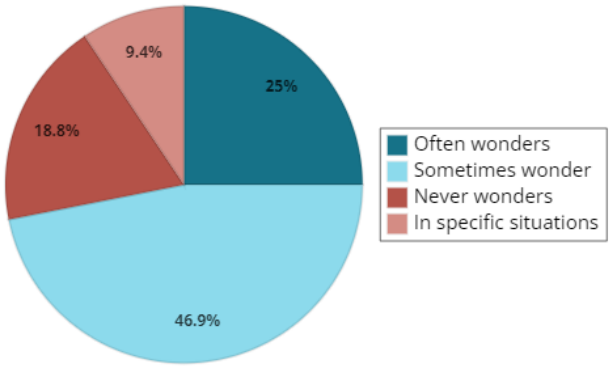

Fig. 10. Do you often think about architecture and its importance in your daily life? (Džiaugys, 2023)

These results suggest that while a majority of respondents have at least some awareness of architecture and its importance in their lives, there is still a significant minority who may not fully appreciate its role or may have negative perceptions of it. One of the most important elements of architectural design is the factor of safety and the feeling of security that makes users feel safe in their environment. In the survey, the question "How important is feeling safe in public spaces to you?" (For results see **Fig. 10**) 65,6% of respondents said that feeling safe in public spaces is very important, highlighting the crucial role that safety and security play in architectural design. and said that feeling safe in public spaces is very important, while 21,9% said that feeling safe is somewhat important, further emphasising the importance of safety and security in architectural design.

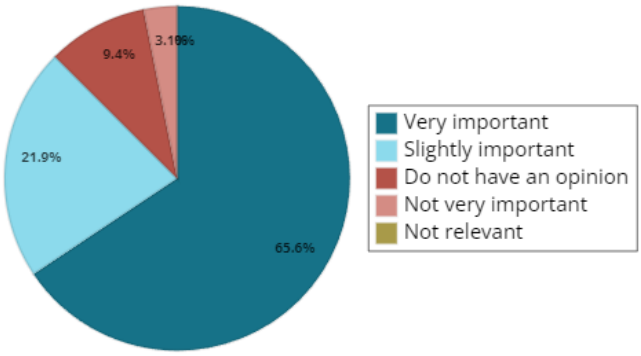

Fig. 11. How important is the feeling of safety in public spaces to you? (Džiaugys, 2023)

Even those who do not consider safety and security to be their top priority still recognise its importance, suggesting that it should not be overlooked or undervalued in the design process. This finding suggests that architects and designers should prioritise user safety and security in the design of public spaces in order to create an environment that is both functional and comfortable for users.

Based on the results, it is possible to try to establish a link between functional, identical, and safe spaces, which make the user feel as if he/she is not visiting the space or building for the first time, provide additional good emotions, make him/her think and relax. This can be done by highlighting the main architectural values that could be identified so far from the answer options received:

- *Design or architecture should provide a sense of security for users, if not emotional then physical.*
- *Architecture should balance aesthetic design and practicality.*
- *Architecture should be a tool for creating human-centered design.*

On the other hand, not only subconscious but also physical factors - natural surroundings, water, plants, details that make us remember and think of peace and relaxation - can determine and trigger positive emotional indicators. With this in mind, those surveyed were asked: "How important do you think it is to include natural elements (water, plants, etc.) in buildings and public spaces? (For results see **Fig. 11**) Although it is known that nature has a direct impact on human health and is associated with meditation, peace, and relaxation, the answers of the respondents were divided into two major categories. 49.7% of the respondents said that it is very important to have natural elements in buildings and public spaces, 37.4% said that it is not very important and the remaining 12.9% of the respondents had a divided opinion, with one group saying that it is not very important and the other having no specific opinion.

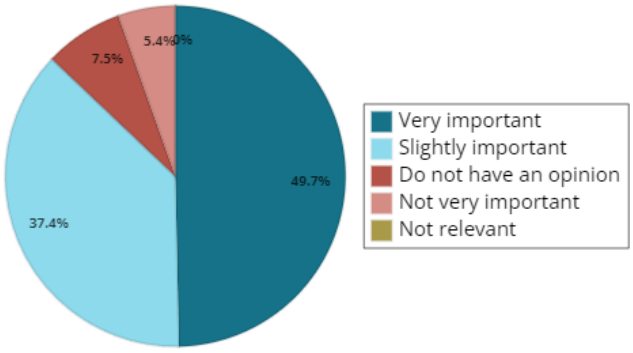

Fig. 12. How important is it to you that buildings and public spaces contain natural elements (Water bodies, plants and etc.) (Džiaugys, 2023)

Although findings show that a large majority of interviewees value natural features in urban areas, and only a small percentage have no opinion, natural features in urban areas do evoke positive emotions in consumers, and thus natural features in urban areas should play a role in urban development.

Closed questions were used to get a quicker sense of the general guidelines or elements that were repeated in the quick answers, and to find more appropriate ways of making architectural decisions that are directly relevant to, or can be used in, the process of developing the former military base area. Architecture can be said to define and delimit the cultural identity and history of a community. It dictates the design and development plan according to one or another theory, technique, or tradition. Thus, it was important to determine whether respondents believed that buildings and spaces should reflect the cultural identity and history of the community. Of the 155 respondents, 70.8% agreed that they should, 10.7% disagreed and around 1.2% of respondents said that they did not necessarily agree, depending on the situation. (For results see **fig. 12**)

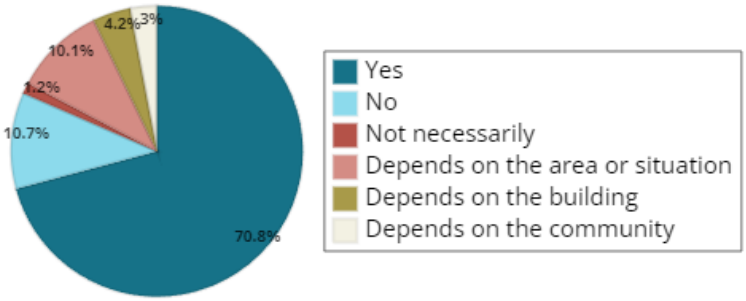

Fig. 13. Do you think that buildings and spaces should reflect the cultural identity and history of a community? (Džiaugys, 2023)

The rest of the respondents and their answers were divided and varied in terms of their individual comments:

- *Not necessarily, however, they must be functional, to the maximum extent possible.*
- *If the community is e.g. employees of an IT company, it would be logical for the building to have technology-like details*

– *I think that when we create space and buildings, we create and grow our own identity*
– *I think that by creating the space and buildings ourselves, we grow our identity*
– *I think it depends on the purpose of the building/space*

Public transport and accessibility, such as pedestrian and cycle paths, are very directly linked to the development plan for the area. Respondents were asked to rate the importance of being able to walk or cycle to public or private spaces and were also asked to rate the importance of public transport accessibility. The vast majority of respondents (For results see **fig. 14**) 65% answered that it was very importantfor them to be able to access public or private spaces by bicycle or on foot, so we can see a direct correlation between respondents' answers in relation to public transport accessibility, where 63,6% of respondents answered that it was very important for them to be able to access public and private areas by using public transport. (For results see **fig. 13**)

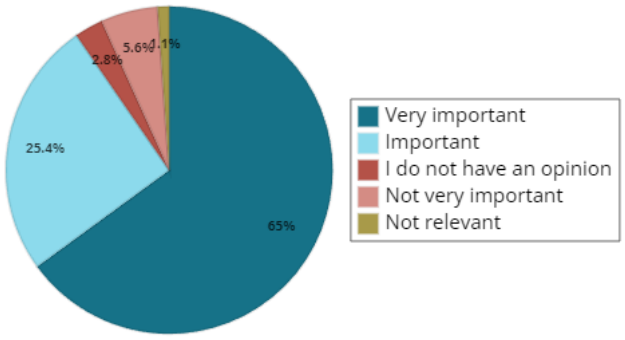

Fig. 15. How important is it for you to be able to walk or cycle to public or private spaces? (Džiaugys, 2023)

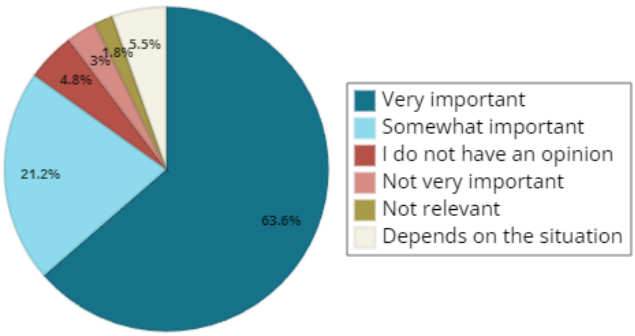

Fig. 14. How important is access to public transport to you? (Džiaugys, 2023)

Meanwhile, 25,4% of respondents said that the possibility of walking or cycling to private or public spaces was important, while 21.2% said that the possibility of accessing public transport was somewhat important to them. We can see a regular trend, but we cannot evaluate the results objectively due to the different infrastructures in the cities, the age of the respondents, determining and other factors, such as - we cannot determine whether the respondent has a private car or whether using public transport would not be inconvenient, for example, it would not increase the time it takes to get to work. 2.8% and 4.8% of respondents had no opinion or otherwise did not express any importance, with an average of 8% of respondents in both cases saying that it was not important to

them and that they did not need such facilities. (For results see **fig. 13** and **14**) The results of these responses indicate that it is important for consumers to be able to access private or public spaces onfoot or by bicycle, as well as to use public transport, and the results suggest that good accessibility should be akey element of infrastructure development during the development phases of an area.

A list of important aspects:

- *Personal circumstances and infrastructure can influence people's preferences and needs related to accessibility,* ***highlighting the need for thoughtful planning and development of infrastructure that takes into account diverse needs and prefernces.***
- ***Accessibility*** *was also a key consideration for many respondents, with a majority indicating that the* ***ability to walk or cycle to private or public spaces*** *was important, and a significant minority valuing access to public transport.*
- ***Functionality*** *was rated as important to a majority of respondents, highlighting the* ***importance of designing buildings and spaces that meet users' needs and preferences****.*

The survey asked respondents to indicate how important natural light in a building was to them, in order to determine how close the answer choices might be and how they might relate to the sensory qualities that directly influence people's emotions and well-being. (For results see **fig. 15**) 75.2% of respondents said that natural light in a building is very important to them, showing a consistent pattern in the results obtained - adequate light, natural surroundings or elements, accessibility to public transport, and walking or cycling as some of the components of sustainable architecture that make up the whole of our environment. 21.6% of respondents said that natural light was very important to them, while only 3 (3.3%) respondents said they had no opinion.

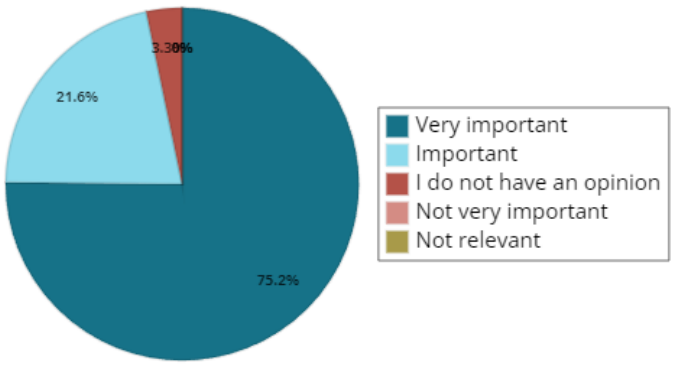

Fig. 16. How important is natural lightning for you? (Džiaugys, 2023)

Also, when asked to indicate the influence of the surrounding environment on their personal appreciation of architecture, respondents unanimously indicated that the surrounding environment has a great deal of influence on their personal appreciation of architecture, with 62.1% of the respondents indicating that it has a great deal of influence, 34.1% indicating that it has a little influence, and only 3.8% of the respondents indicating that it does not have much influence on their personal appreciation of architecture, which suggests that perception of architecture, as mentioned above, may be directly influenced by sensory perception and characteristics. (For results see **fig. 16**)

On the basis of these results, it can be concluded that sensory values such as sight and touch are directly related to the availability of natural light in a building.

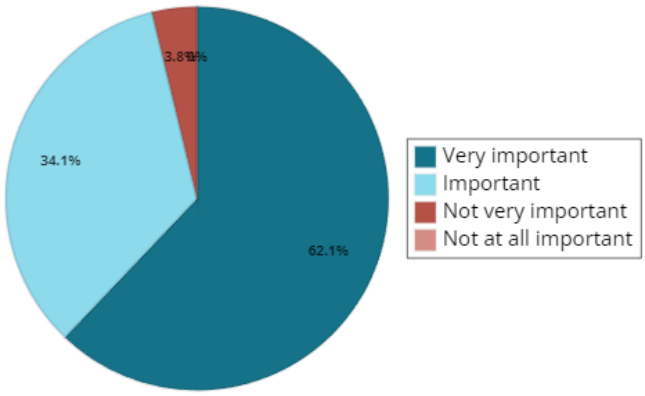

Fig. 17. To what extent does the surrounding environment (E.g. cityscape, nature and etc.) influence your personal evaluation of architecture? (Džiaugys, 2023)

Sustainable architecture and its solutions, energy consumption and conservation, and so on, are also of great importance. The respondents were asked to agree or disagree with the statement - "Energy efficiency and saving should be given priority in buildings and spaces". (For results see **fig. 17**) Where 47.1% of the respondents agreed with the statement, 38.1% partially agreed and 11% had no opinion, the remaining 3.8% represented the minority of those who disagreed with the statement. The vast majority of respondents, with the exception of the age group, are in favour of increasing energy efficiency and saving energy through appropriate measures. This also can be seen in respondent answers to the question “how important is sustainability and energy efficiency to you?” (For results see **fig. 18**) where 45,6% answered that sustainability is very important, 32,9% stated that it is somewhat important, and 13,3% had no opinion, majority of responses dictate the positive atitute towards sustainability and energy efficiency. However, it should be noted that sustainable architecture cannot force the user to give up comfort in order to achieve a sustainable and efficient standard of living.

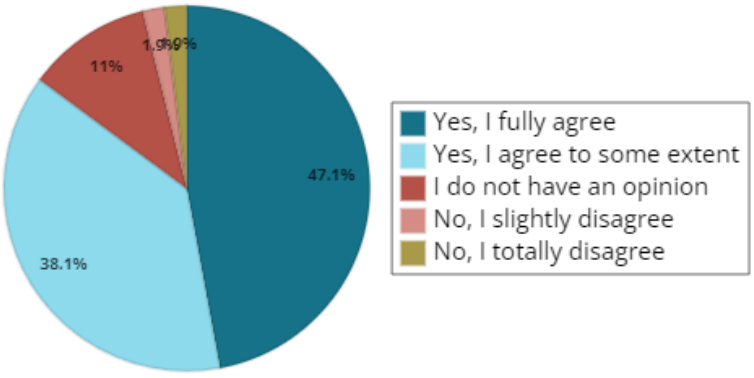

Fig. 18. Do you think that energy efficiency and conservation should be a priority in buildings and spaces? (Džiaugys, 2023)

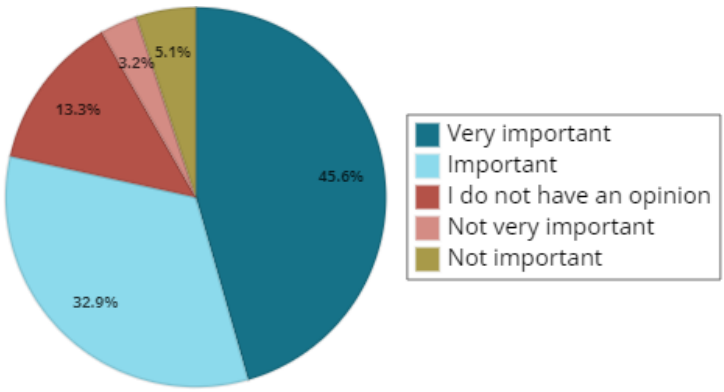

Fig. 19. How important is sustainability and energy efficienty to you? (Džiaugys, 2023)

Results of the responses to closed – ended questions.

Based on the analysis of the closed-ended questions, it can be concluded that the analysis of these response options has provided a solid basis for further research and development phases of the site, as well as for future decisions. The highlighted elements, which are listed below, can be taken as a first iteration of a list of guidelines to be used as recommendations in the design process. The respondents' opinions were almost identical in almost 2/3 of the responses, suggesting that this periodicity and repetition of responses can be adopted by other groups of people in further research and/or can be used without having to conduct additional new surveys, which means that in a hypothetical situation, the answer can be sought by using the results already given and obtained and their analysis. Further analysis of the results of the open-ended questions will be complementary to these existing results and will form a single framework of results.

List of analysed and filtered results of the trial survey of first users:

- The design or architecture should give users a sense of security, if not emotional, then physical.
- Architecture should balance and find a link between aesthetic design and practicality.
- Architecture should be a tool for human-centered design.
- Walking or cycling to private or public spaces
- The importance of designing buildings and spaces that meet the needs and preferences of users.
- The importance of functionality and accessibility.
- Urban or object spaces should be integrated with natural elements.
- Promoting sustainability and the efficient use of energy, materials, and resources without depriving users of comfort.
- Sensory elements as architectural details must be included in the design and development process.

Part II – Responses to open – ended questions.

The analysis of the results of the second part of the questionnaire will be limited to open-ended questions and will use knowledge and foundations not only of architectural theory but also of

grounded theory, in order to assess the validity of the answers and the proximity of the answers to the hypotheses put forward.

Respondents were asked to write down their favourite architectural style, the one that fascinates, pleases, and interests them the most. The aim of this question was to elicit responses and to set a hypothetical direction for the research and the answer options, to find out which architectural styles, and the details of those styles in the analysis, are typical, and to identify elements that could be used in the development of the area.
The response options were distributed as follows:

Table 2. Users preferred architectural styles and the frequency of their responses. (Džiaugys, 2023)

ARCHITECTURAL STYLE	COUNT	RESULT
Modern	52	33,54 %
Modernist	32	20,65 %
Traditional	12	7,7 %
Baroque	6	3,8 %
Art Deco	7	4,5 %
Scandinavian	15	9,6 %
Interwar Modernism	3	1,9 %
Minimalist	3	1,9 %
Classicism	2	1,29 %
Bauhaus	2	1,29 %
Neo-Expressionism	1	0,64 %
Rustic	1	0,64 %
Gothic	3	1,9 %
Minimalism	1	0,64 %
Didn’t have a preferred style	11	7,1 %

33.54% of the respondents named Modern as their favourite architectural style, 20.65% named Modernist, 9.6% named Scandinavian, 7.7% of the respondents named Traditional, and 4.5% Art Deco. Further analysis of the results will use a continuous comparative approach to identify differences and similarities between the main architectural styles mentioned the most, as well as groupings or common themes.

The 5 mostly mentioned architectural styles:

- Modern
- Modernist
- Traditional
- Art Deco
- Scandinavian

Table 3. Similarities of 5 mostly mentioned architectural styles. (Džiaugys, 2023)

STYLE	MODERN	MODERNIST	TRADITIONAL	ART DECO	SCANDINAVIAN
MODERN	-	Simplicity	Innovation	Geometric shapes	Minimalism
MODERNIST	Simplicity	-	Functionality	Streamlined forms	Minimalism
TRADITIONAL	Innovation	Functionality	-	Ornamentation	Natural materials
ART DECO	Geometric shapes	Streamlined forms	Ornamentation	-	Luxurious materials
SCANDINAVIAN	Minimalism	Minimalism	Natural materials	Luxurious materials	-

Table 4. Differences of 5 mostly mentioned architectural styles. (Džiaugys, 2023)

ARCHITECTURAL STYLE	LAYOUT	COLOR	DETAILING	MATERIALS	SHAPES
MODERN	Asymmetrical	Neutral	Minimal	Industrial	Straight and geometric
MODERNIST	Asymmetrical	Neutral	Minimal	Industrial	Curved and organic
TRADITIONAL	Symmetrical	-	Ornate	-	-
ART DECO	Symmetrical	Bold	Intricate	Industrial	-
SCANDINAVIAN	Symmetrical and asymmetrical	Neutral and natural	Minimal	Natural and organic	Straight and geometric.

The results of this first open question indicate and suggest that, given these similarities in architectural styles:

- Minimalism of spaces and buildings
- Functionality of spaces
- Simplicity of spaces and buildings.
- Innovation or innovative solutions.
- Streamlined forms
- Natural and organic elements.

These choices can be directly based on the theories of Juhani Pallasmaa and Maurice Merleau-Ponty and their statements, which respond directly to one of the propositions put forward by the hypothesis, and are closely linked to architectural ideologies, which could now be phenomenology, which in this case could be seen as a sensory and emotional engagement with the world.(Pallasmaa, 1996), or in other words nature also could be seen as an active participant in our sensory and

emotional engagement with the world (Merleau-Ponty, 1945). The juxtaposition of these features and elements and their application to the development of the site could be used to complement the emerging guidelines that will be used in the further development of the site. Furthermore, these 5 features will greatly complement and appropriately narrow down the search for possible architectural styles and elements.

Respondents were also asked to try to give a short answer on how the architecture of the building affects their emotions or their overall experience of using the building space. The purpose of this question was to identify users' needs and more specific desires when evaluating or using architecture, as well as to provide a basis to support or refute the second and third hypotheses, also this question received 155 responses from different respondents, so the grounded theory was explored to identify the most recurrent responses and themes. Also, to create categorical groups that directly reflect the response options.

Table 5. Analysis of common answers and topics. (Džiaugys, 2023)

COMMON TOPIC	COUNT	RESULT
High ceiling and spacious rooms	10	6,45 %
Eye catching architecural style	17	10,96 %
Spaciousness and light	14	9,03 %
Natural light	6	3,87 %
Harnmony and aesthetics	19	12,25 %
The practicality of spaces	16	10,32 %
Greenery and openness	18	11,61 %
Size	6	3,87 %
Aesthetics	13	8.38 %
Functionality	8	5,16 %
Comfort	3	1,93 %
History of the building	2	1,29 %
Condition	4	2,58 %
Layout	5	3,22 %

Catergories from the mostly named subjects or elements, that in positive way impact user, their emotions or their overall experience of using the building space:

1) **Design and Aesthetics:**
   - The beautiful and eye-catching architectural style
   - Harmony and aesthetics both inside and outside the building
   - Appropriate architectural styles (e.g. Gothic, Baroque) make it feel grand and sublime
   - Safety

2) **Space and Light**:
   - Spaciousness and light
   - Use of natural light, open spaces, and greenery often creates a sense of calm and relaxation
   - Size of space

3) **Functionality and Layout**:
   - The practicality of the spaces provides the conditions for creation, and the aesthetic view provides inspiration for the development
   - Good layout of spaces
   - Functionality

4) **Comfort and History**:
   - Comfort and beauty
   - History of the building and condition
   - Complex layout
   - The building or space for the relevant use

Incorporating a subtle understanding of human experience and emotions into the design process can improve the efficiency and sustainability of urban development. By taking into account people's subjective experience and perception of the built environment, we can create spaces that are more responsive to the needs and desires of the community, which ultimately leads to more successful and impactful urban design, just as, based on these results, it is possible to argue that the analysis of people's needs can be a direct determinant of the success of a project, due to the identification of clear desires and preferences that need to be taken into account. In this case, these are the categories of elements that are prioritised and analysed and that could be grounded in phenomenological theory Both Juhani Pallasmaa and Maurice Merleau-Ponty emphasize the importance of human experience and perception in the design process.

Pallasmaa argues that architecture should aim to deepen ussensory and emotional engagement with the world, which requires an understanding of how people perceive and experience the built environment. Similarly, Merleau-Ponty emphasizes that perception is not just a matter of passive observation, but an active process in which the body and the environment are intertwined. Just as it is known that each user's relationship to nature and the environment is individual, as is the way they look at things, it can be argued that architectural objects can directly make users react to and perceive an object or detail in the same way.

And in this case, respondents were asked to answer and name a building that they think is particularly well-designed. What makes it stand out for you? However, due to the diversity and differences in the responses, this open-ended question and its answer options are not presented for analysis in this study and are not used to justify or refute the hypotheses, as the complexity and number of buildings make it difficult to assess the criteria and categories that people use to select the buildings they like, However, it is possible to say that at first glance it is obvious that the majority of the buildings and their architectural types are directly related to the 5 main and most mentioned architectural types in the closed questions and that there is a clear correlation between the two response possibilities.

Furthermore, respondents were asked to answer the question - "How do you think the design and layout of a building can affect your mood, emotions, or general well-being? If yes, how? to identify and further explore the features and elements that users perceive in their perception of the space, details, or solutions around them that can directly affect their mood, emotions, or overall well-being? The options for answering this question are presented in the form of a table, which will be further

analysed to identify the key features and elements that will contribute to the final list and conceptual model. (For results see **table 6**)

Table 6. Analysis of given answers and their results. (Džiaugys, 2023)

COMMON TOPIC	COUNT	RESULT
Named that it could have an impact.	150	96,77 %
Named that it could have an impact if it's designed improperly.	25	16,12 %
Named that colours and textures can have an impact.	13	8,38 %
Named that good layout could have an impact.	20	12,90 %
Named that size could have an impact.	5	3,22 %
Named that the wrong height of building interior spaces or details can have an impact.	4	2,58 %
Named that the lack of natural lighting could have an impact.	27	17,41 %
Named that the aesthetics of a building could have an impact.	29	18,79 %
Named that the practicality of building could have an impact.	15	9,6 %
Named that good forms could have an impact.	17	10,96 %
Named that it does not have an impact.	5	3,22 %

Based on the results of the answers and the calculations of the grounded theory, we can say that sensory values are among the most important for consumers when evaluating architectural spaces or architecture itself, which can be compared to the answer we gave earlier, where we identified sensory qualities and their valuation and importance in the lives of people.

Also, survey results show that 96.77% of respondents agreed with the statement that the design and layout of a building can affect your mood, emotions, or general well-being. and only 3.22% disagreed or had no opinion on this statement, so we can say that not only phenomenological but also sensory values are very important for the evaluation of architecture and its importance in the eyes of the users, for example even 17.41% of the respondents answered that natural light affects or can affect them positively, and that lack of it negatively affects them, which is in direct response to the hypothesis that sensory and emotional qualities have a positive and positive relationship to one another. It should be mentioned that architecture may not only provide positive emotions; according to the respondents, 2.58% of the respondents said that poorly designed spaces and 8.38% identified poor choice of colours and shapes as a cause of negative emotions. These factors are not the only ones that can cause positive or negative emotions, in addition to poor choice of materials, cluttered or difficult-to-understand design, and lack of thought or ideas in architecture.

All of this can be described as a lack of sensory and phenomenological elements, which makes architecture lean towards functional architecture only, in direct contradiction to the idea put forward

before and to the users' responses that architecture should balance between aesthetic design and practicality.

In order to better identify the qualities of the architectural elements that would guide the development of a purposeful conceptual model for the development of the former military base, as well as to incorporate the opinions and preferences of the users, the respondents were asked to identify the following characteristics of the architectural elements: - What design features in the architecture do you find visually appealing? What design features in architecture do you find visually unappealing?

Answers are sorted into topics for analysis.

Visually appealing topics:

- Proportion
- Symmetry
- Minimalist accents
- Differences in heights
- Colour gamuts
- Large windows
- Lots of glass, concrete
- Subtle details
- Integrity
- Naturalness
- Harmony
- Balanced composition
- Natural materials
- Clear layout
- Colours
- The overall relationship between the parts of the building
- Proportions
- Historical context,
- Domes
- Many small details
- Proportionality and symmetry
- Serenity, natural materials, and details
- Grandeur, minimalism and modernism
- Light and space.

Visually unappealing topics:

- Inconspicuous choice of colours
- Cluttered design
- Low rooms
- Monolith
- Massive metal structures
- Small windows
- Vague idea
- Vague shapes
- Vague details
- Eclectic colours
- Uniformity
- Unused spaces
- Angularity, boxy shape

Elements that make you feel uneasy:

- Limited white light symmetry
- Mismatched colours
- Chaotic
- Impracticality
- Dark patterns
- Excessive use of glass
- Rhythmics
- Excessive use of colour
- Clashing styles
- Chaotic layout
- Asymmetry or unbalanced design
- Too little natural light
- Too many different materials
- Dark shades
- Bright colours, massive elements
- Too complex shape

All topics were sorted into categories in order to narrow down big lists of answers.

Aesthetics:

- Proportion
- Symmetry
- Minimalist accents
- Differences in heights
- Colour gamuts
- Subtle details
- Naturalness
- Harmony
- Balanced composition
- Clear layout
- Colours
- Proportionality and symmetry
- Serenity, natural materials, and details
- Grandeur, minimalism and modernism
- Light and space

Materials:

- Lots of glass, concrete
- Natural materials
- Domes

Function:

- Large windows
- The overall relationship between the parts of the building

Context:

- Historical context
- Many small details
- Integrity

Categories for visually unappealing aspects:

Incoherence: Inconspicuous choice of colours, Vague idea, Vague shapes, Vague details, Unused spaces, Chaotic, Chaotic layout, Clashing styles, Asymmetry or unbalanced design, too many different materials, too complex shapes.

Oppressive: Cluttered design, Low rooms, Monolith, Massive metal structures, small windows, Angularity, boxy shapes, Excessive use of glass, Dark shades.

Discomfort: Elements that make you feel uneasy, Impracticality, Dark patterns, too little natural light.

Overwhelming: Eclectic colours, Uniformity, Rhythmics, Excessive use of colour, Bright colours, massive elements.

In order to determine the exact number and score of respondents answering both questions, we will use grounded theory to construct a table to calculate recurring responses, themes, and other items. A Respondent number is always n = 155.

Table 7. Analysis of separate answers and constant comparison method. Visually appealing elements. (Džiaugys, 2023)

COMMON TOPIC	COUNT	RESULT
Named a visually appealing element	155	100 %
Symmetry	29	18,70%
Proportion	6	3,8 %
Balance	3	1,93 %
Minimalist accents	15	9,6 %
Details	8	5,16 %
Natural or organic material	20	12,90 %
Harmony	3	1,93 %
Correct colors	16	10,32 %
Openings (windows, openings in walls)	14	9,03 %
Façade or interior design	6	3,87 %
Rhythm	5	3,22 %
Extraordinary or very uncommon façade details, ornaments	6	3,87 %
Massive objects or details	3	1,93 %
Proportion	6	3,87 %
Natural lighting	15	9,6 %

The results show that the vast majority of respondents agreed with and chose elements that symbolise or otherwise convey the relationship between the user and the space, which, on the other hand, is in line with the architectural ideology and the idea of connection, today's phenomenology 18, 7% of respondents mentioned symmetry as a visually appealing feature of architectural design, 12, 9% mentioned natural or organic elements and materials, 10.32% chose a colour, and 9.03% said that openings and natural light in buildings are a visually appealing design feature, so the results suggest that all the elements most frequently chosen in the context of phenomenology imply the presence of balanced and harmonious structures, patterns or relationships. This can also be considered, for example, in terms of effects on perception, cognition, and emotional reactions.

The answers of the respondents show that the relationship between people and their surroundings could and/or should be given special attention in the development of the area and those design elements should be natural, organic, and sustainable, avoiding cluttered design and obscure forms. (For results see **table 7**)

Table 8. Analysis of separate answers and constant comparison method. Visually unappealing elements. (Džiaugys, 2023)

COMMON TOPIC	COUNT	RESULT
Named a visually unappealing element	155	100 %
Invalid or clashing colors	35	22,58 %
Chaotic design or layout	4	2,58 %
Impracticality	3	1,93 %
Lack of natural light	18	11,61 %
Clash of many different architectural styles	8	5,16 %
Too many different materials (not organic, imitation of natural materials)	7	4,5 %
Too complex shapes and forms	8	5,16 %
Lack of space	13	8,38 %
Strange shapes and details	11	7,09 %
The poor layout or too complex design	25	16,12 %
Monotony	5	3,23 %
Static design	4	2,58 %
Lack of harmony	14	9,03 %

The majority of respondents (22.58%) agreed that inappropriate colours or too much colour is an unattractive feature of architectural design, and the results also show that there is a predominantly minimalist tendency in the answers, with 16.12% of the respondents mentioning, 11.61% mentioned that the lack of natural light and 9.03% mentioned that the lack of harmony is an unattractive design feature, also it is mentioned in the comments that unclear shapes, ideas, elements that make one feel uncomfortable are also classified as unattractive design features that make one detach from the space and that they are not to be seen in a positive light. Based on the results we can conclude that **arer required to take into account:**

- Natural and organic elements should be given special attention in the design and development of the site.
- Practical, clear, and functional design and site planning.
- The selection of appropriate colours to directly respond to the emotional state of the users.
- Space and site planning require the choice of the right strategy to create good harmony between the environment and the user.
- The choice of clear shapes, ideas, and elements must also be given special attention.
- Architectural design and territorial planning should be focused on incorporating harmony between aesthetic design and practicality.
- Areas and spaces should be open, reachable, and elevated by their importance to human perception and cognition.

To further establish the relationship between consumer and phenomenological values and aspects of architecture, respondents were asked to name and try to answer to what extent they think their emotions, memories, and personal experiences influence their perception of architecture. How do

they think phenomenological aspects such as sensory perceptions and subjective experience shape their understanding and appreciation of architecture?

For this question, the number of respondents was divided as follows - Lithuanian n = 37 (100%), English n = 25 (100%), the total number of respondents = 62, although a clear and visible decrease in the number of responses was visible, with a decrease of 76.13% in the Lithuanian language and 83.88% in the English language, however this question and its answer were not compulsory to be answered, and so all those who are able to share their experience were asked to share their experiences, which, if analysed, would allow us to better identify the qualities of the architectural ideology and the philosophical features that influence the users' perceptions of and appreciation of their environment.

It is important to note that out of all the responses received, the 8 individual responses mentioning that they have not been exposed or do not think they could be affected will not be included in the results and analysed.

Based on the ideas of Juhani Pallasmaa and Maurice Merleau-Ponty, it can be assumed that the respondents' phenomenological perception of architecture is distorted not only by the strong Soviet architecture in the current situation but also by historical periods that have had a strong influence on people's perception and appreciation of general architecture and that this question of the respondents is directly related to the hypotheses put forward and that the current hypotheses that they can be directly supported by the following aspects if :

- A) There is a positive relationship between the sensory and emotional qualities of architecture and the level of users' engagement with and appreciation of architectural spaces, the sensory qualities that can be associated with emotions in architecture are visual, tactile, auditory, olfactory, and gustatory qualities, for which we can refer to the work of Maurice Merleau-Ponty, the French phenomenologist who argued that our perception of the world is shaped by our embodied experience and that our experience of architecture is not only visual but also includes our other senses such as touch, sound, and smell, and that the emotion in architecture is the contact or the emotional connection with the elements and the details that are then...

- B) is a phenomenology, so it can be argued that the two hypotheses are complementary and mutually reinforcing because they are directly related.

- C) This deeper understanding and connection may in turn lead to more sustainable urban development practices, as users become more engaged and appreciative of the spaces in which they live, and are more likely to take care of them and preserve them over time.

The respondents agreed that phenomenological aspects can have a positive effect on the perception of architecture, stimulate memories and emotions and that the surrounding details, such as elements of nature (water, nature), can make one feel a closer connection between the person and the environment, but there is a tendency that in the answers of the Lithuanian respondents there is a pronounced element of the legacy of the Soviet architecture and the legacy of the Soviet ideology which they both identify and agree, Historical periods also have a huge impact on our general perception, making us more conservative, more restrained, comparing the answers, it can be seen that

a common concept emerges in the answers - the importance of details and the connection with the human being (the user), the mixture of colour palettes and personal experiences, easiness of places, good materiality of building, practicality, and aesthetics of a building which helps to form new perceptions, new status quo.

Part III – summarised results.

The analysis and synthesis of the results show that consumers tend to prefer details, elements and, design solutions that embody phenomenological qualities and that their attention is often focused on the analysis of the relationship between the human being and the surrounding environment, rather than on the analysis of the functional space and function. Moreover, a large number of respondents and the clear regularity and repetition of the responses suggest a theoretical saturation, which means that the pattern of such analysed responses and the results obtained can be applied to further experiments without further research.

Sensory and emotional values for users remain one of the most important elements of architectural design, which not only encourages understanding and perception of the environment in a different way but also forces the user to look for new solutions by discovering what has not yet been individually discovered or understood. It can be argued that sensory qualities, together with the phenomenological ideology of architecture, not only make sense of but also encourage the user to experience and see architecture beyond the physical level.

It can be said that the personal hypothesis - that consumers would eventually find the meaning of architecture irrelevant - is refuted, based on the fact that consumers have expressed their opinion and desire to see clear elements, and organic and natural materials in buildings or their design, to feel and enjoy open, airy and natural light-filled spaces, and to see more natural elements in cities and public spaces. Although architectural development is currently stuck on contemporary architecture, we can see a tendency for the architectural styles and physical features that we have felt and seen in the past to have an impact on the spirit of a place, the understanding and appreciation of it.

From the summary of the results, the list of the most important elements, and design details were generated that would be used to create a conceptual model goes as follows:

1. *Design or architecture should provide a sense of security for users, if not emotional then physical.*
2. *Architecture should balance aesthetic design and practicality.*
3. *Architecture should be a tool for creating human-centered design.*
4. *Natural and organic elements should be given special attention in the design and development of the site.*
5. *Practical, clear, and functional design and site planning.*
6. *The selection of appropriate colours to directly respond to the emotional state of the users.*
7. *Space and site planning require the choice of the right strategy to create good harmony between the environment and the user.*
8. *The choice of clear shapes, ideas, and elements must also be given special attention.*
9. *Architectural design and territorial planning should be focused on incorporating harmony between aesthetic design and practicality.*
10. *Areas and spaces should be open, reachable, and elevated by their importance to human perception and cognition.*

11. *The design or architecture should give users a sense of security, if not emotional, then physical.*
12. *Architecture should balance and find a link between aesthetic design and practicality.*
13. *Architecture should be a tool for human-centered design.*
14. *Walking or cycling to private or public spaces*
15. *The importance of designing buildings and spaces that meet the needs and preferences of users.*
16. *The importance of functionality and accessibility.*
17. *Urban or object spaces should be integrated with natural elements.*
18. *Promoting sustainability and the efficient use of energy, materials, and resources without depriving users of comfort.*

2.3. A focus group study exploring the experience and emotions of users of Architecture using tactile simulation through the observation of biometric and biological data in various settings

In our ever-evolving world, individuals encounter a multitude of changing situations that require them to adapt and respond accordingly. Understanding how people navigate and respond to these dynamic environments is a complex endeavor that encompasses both internal and external aspects of human experience. This study aimed to delve into the process of adaptation by observing and identifying how individuals in a room adapt or fail to adapt to a changing situation, while also exploring the associated changes in their internal and external states in response to external stimuli.

To accomplish this, a focus group approach was employed, with 13 participants engaging in discussions on selected topics. Additionally, biometric data tracking techniques, including heart rate monitoring, were utilized to capture changes in participants' physiological responses. Moreover, the study involved meticulous tracking of visible and invisible changes and reactions, coupled with collecting participants' responses to understand the sensory features influencing their emotional and physical states.

By combining qualitative observations, biometric data, and participant feedback, this study sought to shed light on the intricate relationship between human adaptation, external stimuli, and internal states. It aimed to uncover patterns, trends, and insights into how individuals navigate changing situations, providing valuable knowledge that could contribute to various fields such as psychology, human behavior, and design.

It is important to note that the participants in the focus group were closely familiar with the environment in which they took part in the study, as well as being familiar with each other, but representing different fields and professions.

The focus group study consisted of 3 rounds of discussion and 2 rounds of physical sensory and external stimuli.

Round 1. Question – Can you in one word describe your feeling right now?

Table 9. Assessment of participants' personal well-being and mood. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6
ANSWER	Good	Awkwardly	Good	Good	Neutral	Good

Table 10. Assessment of participants' personal well-being and mood. (Džiaugys, 2023)

PARTICIPANT	7	8	9	10	11	12
ANSWER	Good	Good	Good	Good	Awkwardly	Nice

Positive emotions and moods are noted at the beginning of the study and will be tracked as the studyprogresses. Also, during the study, 7 out of 13 participants monitored their heart rate and recorded the readings on their smartwatches, it is important to note that the watches used are identical.

Table 11. Participants' heart rates at the start of the study. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6	7
HEART RATE	65	62	68	72	88	73	80

Round 1. Discussion topic – Perception of architecture in everyday life.

Discussion responses - Participants had an intense discussion about everyday challenges and how thiscan affect their understanding and observation of architecture, several participants also stressed that the perception of architecture and the willingness to observe it also comes from one's own individual experience, and during the discussion, all the participants agreed with the idea that architecture is not only what is being used for everyday life activities, also that because of the fast tempo, they often don’t even see big changes or changes in sensorial qualities and also their impact on their emotionalor physical condition.

It is also important to mention that during the discussion, the participants also identified some key differences, among which are - The appreciation of architecture and its importance for a person comes not only from the age of the architecture he sees but also from his experience or his profession as well, health science representatives identified the importance of architecture and its perception as an inalienable power to think and appreciate everything that surrounds him/her, while participants from the construction and engineering field argued that architecture can only make people admire it if it is aesthetically beautiful, functional or unseen before.

Table 12. Participants' heart rates after the first round of discussion. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6	7
HEART RATE	73	88	75	78	65	72	66

Round 2. Discussion topic – Change in surrounding material and positioning, category – Visual sensorial quality.

The insightful discussions that unfolded in the focus group shed light on the influence of surrounding materials and positioning on visual sensorial quality. Participants from the human sciences emphasized the importance of considering the psychological and emotional responses of individuals to different materials and spatial arrangements. They highlighted the impact of visually pleasing environments on mood, well-being, and cognitive processes. The participants from

architecture, engineering, and construction contributed by drawing upon their knowledge of material properties, lighting design, and spatial configuration. They emphasized the significance of material selection and the strategic use of positioning to create visually captivating and harmonious spaces.

Overall, the focus group's conclusions highlighted the multidimensional nature of visual sensorial quality. The findings underscored the need for interdisciplinary collaboration between human sciences and architectural disciplines to optimize the design and implementation of spaces that elicit positive visual experiences. The discussions generated valuable insights for architects, designers, and professionals in related fields, offering practical considerations for the selection, arrangement, and integration of materials to enhance visual sensorial quality in various environments.

The findings also highlight that the quality of visual sensations can affect people's overall well-being and satisfaction with their environment. Participants agreed that further research and exploration in this area is needed to better understand the complex relationship between human perception, emotional reactions, and the physical environment. The insights gained from this focus group can be used to inform future design guidelines, the development plan for the former military base in Karmėlava, and building practices and interventions to optimise visual sensory quality and promote positive experiences in the built environment.

Table 13. Participants' heart rates after the second round of discussion. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6	7
HEART RATE	80	76	82	72	77	63	58

Round 3. Of a focus group – focusing on the touch and feel of different materials – discussing what different emotions or memories different materials call up. Materials used – Steel, Timber, Plastic, clay, also natural elements – grass.

The participants, sitting close to each other, have the opportunity to physically touch and feel the materials as they discuss the emotions and memories that different materials evoke. The close physical proximity fosters a heightened sense of connection and shared experience among the participants. The small room setting also enhances the participants' ability to observe each other's reactions and nonverbal cues. As they engage in the tactile exploration of materials, their facial expressions, body language, and gestures become more noticeable, leading to a deeper level of empathy and understanding among the group.

One of the most noticeable and worth mentioning aspects from this discussion is material choice and emotional associations, results suggest that individuals have subjective emotional associations with different materials. Some materials, such as timber, clay, and grass, were commonly perceived as closer and evoked positive emotions, while materials like plastic and steel were perceived as more distant and evoked negative emotions. These findings highlight the personal and subjective nature of emotional responses to materials. Participants highlighted the emotional impact of materials and that they can help to create spaces, objects, or environments that resonate positively with individuals and elicit desirable emotional responses.

Table 14. Participants' heart rates after the third round of discussion. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6	7
HEART RATE	90	88	105	100	88	90	92

Round 4. Discussion on overall sensorial qualities and perception.

No external stimuli were present during this round of discussion, the absence of other stimuli ensured that the focus remained solely on the discussion topic without any additional distractions.

During a focus group discussion on common sensory qualities and perception, participants discussed in detail their sensory experiences in the room. They discussed various aspects including lighting, sound, textures, colours, and smells to understand how these elements affect their emotions, mood, and cognitive processes, and although the participants' experiences were shared, noticeable differences emerged during the discussion. Some participants were more sensitive to certain sensory stimuli and perceived them more intensely than others, for example, some people reported being very sensitive to sound and its effect on overall perception, while others stressed the importance of lighting and its effect on mood and atmosphere. These differences highlighted the subjective nature of sensory experience and the importance of individual differences in the perception and interpretation of stimuli.

The discussion ended with – an agreement that a touch and feel test was a good way to check how emotions change when holding hotter or colder material or one with more to touch. Participants agreed that sensorial qualities are important for humans to perceive and understand the world and architecture around them better.

Table 15. Participants' heart rates after the fourth round of discussion. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6	7
HEART RATE	76	70	65	60	62	63	66

After the last round of discussion participants were asked once again to describe their feelings and emotions after research was over.

Table 16. Assessment of participants personal well-being and mood. (Džiaugys, 2023)

PARTICIPANT	1	2	3	4	5	6
HEART RATE	Good	Engaged	Tired	Tired	Good	Good

Table 17. Assessment of participants' personal well-being and mood. (Džiaugys, 2023)

PARTICIPANT	7	8	9	10	11	12
HEART RATE	Interested	Good	Elevated	Good	Motivated	Inspired

Focus group research summarised results

Based on the results of the responses, we can conclude that 4 main themes were actively discussed and summarised during the discussion:

1. **Perception of Architecture**
2. **Visual sensory quality**
3. **Emotional associations with materials**
4. **Subjcetive nature of the sensory experience.**

Participants clearly identified and acknowledged that architecture is not only about functionality butalso about aesthetics and that the personal experience and professional training of the individual influences the appreciation of architecture and that the choice of surrounding materials, especially natural and organic ones, has been found to play an important role in influencing mood, well-being, and cognitive processes, and comments added that interdisciplinary collaboration between the human sciences and the architectural disciplines is necessary to optimise the design of visually appealing spaces.

Tactile exploration of different materials revealed that individuals have subjective emotional associations with different materials. Materials such as wood, clay, and grass were generallyperceived as more proximate and evoked positive emotions, whereas materials such as plastic and steel were perceived as more distant and evoked negative emotions. These results underline the importance of taking into account emotional reactions to materials when designing spaces or objectsand suggest that it is important to acknowledge and take into account different sensory preferences when designing an inclusive and attractive environment.

Altogether, the focus groups provided valuable insights into the complex relationship between human perception, emotions, and the built environment. It highlighted the importance of taking sensory qualities into account in architectural design, encouraging interdisciplinary collaboration, and recognising the individuality of sensory experience.

2.4. Analysis of the elements and components of the architectural objects that met the criteria and the results of the analysis, as a feasibility study of alternative ideas and applications

To determine whether the details, elements, and design features of specific completed projects, randomly selected architectural objects, and architectural objects selected from the structured survey are the same as the architectural elements identified and analysed in the user survey results. The analysis of the objects was based not only on space, but also on external details, natural elements, architectural typology, ideas, architectural success, and other criteria, which were analysed for correspondence and to generate a list of elements that lead to better architecture. A total of 10 Objects were evaluated - 2 projects equivalent to the specific situation and task (projects for the development of the area of the former military base), and the remaining 8 that matched all required parameters were selected as architectural objects of public and private use.

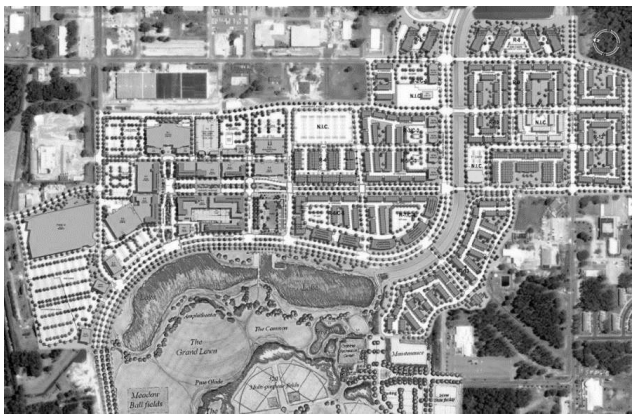

Fig. 21. Market common myrtle beach redevelopmentproject master plan (Antunovich associates, 2017)

Fig. 20. Base before redevelopment (Manske, 1994)

Two projects - Market common myrtle beach and Spikeri Block - have been selected for architectural analysis.

Fig. 23. Market common myrtle beach redevelopmentproject master plan (Antunovich associates, 2017)

Fig. 22. Spikeri Warehouse block in Riga (Unknown, 1860)

The Spiker block project clearly shows the possible alternatives and actions to involve not only the private sector but also the public sector in a collaborative way, creating possibilities and options to develop a project with additional opportunities. This is one of the key opportunities and alternatives that can be used in the development of the former military base site in Karmėlava, which would create additional opportunities for development beyond the private sector without overriding the wishes of the community or the residents, and thus creating a common plan of action to make better use of the existing disused area.

Similarly, the United States Myrtle beach Air Force Base was developed as an "urban village", bringing together all the infrastructure that people need - shops, hospitals, veterans' clinics, parks, and walking trails. Particular attention was paid to the relationship between man and nature, the surrounding green areas, the development of parks, and the improvementof residential infrastructure.

The location of the site is in a very important strategic position, close towater bodies, which allowed us to steer the design process and the overall understanding of the conceptof community in an additional direction. And on this basis, we can raise the question of how we can take these design solutions, or parts of them, and use them in the development of the Karmėlava military base. Architectural details or elements such as - public spaces.

First – identifaction of elements from which it would be possible to pick out deltails that we would like to use, currently this could be the development of a former military base (warehouses) for the development of public spaces.

In both examples, the public spaces were designed in the centres of the areas and/or near water bodies. This gives additional room for improvisation in the development of the Karmėlava area, as the area is close to a water body and surrounded by woodland, allowing similar solutions to be taken on the basis of successful projects already implemented. For example - Urban community spaces could be designed near water bodies where they could gather and spend their leisure time, or wooded areas could be transformed into leisure and relaxation spaces separated away from residential or industrial areas and zones, which would give people a more distinctive character and an additional positive emotion in the layout of the area.

Table 18. Analysis of architectural objects and their design elements. (Džiaugys, 2023)

Building	Space	External details	Natural elements	Architectural typology	Ideas	Architectural Success	Other Criteria
The High Line	Adaptive use of space	Urban integration	Incorporates greenery	Linear Park	Revitalizing urban infrastructure	Increased foot traffic	Community engagement
The Eden Project	Unique spatial experiences	Organic design	Botanical gardens	Geodesic domes	Sustainability and biodiversity	Tourist attraction	Environmental consciousness
The Salk Institute	Serene and open spaces	Linear courtyard	Ocean views	Research institute	Collaboration and innovation	Architectural acclaim	Scientific contributions
The Masdar City	Sustainable urban planning	Modern and sleek design	Solar panels	Eco-city	Renewable energy and sustainability	Environmental model	Energy efficiency
The Paprocany Lake Shore Development	Recreational and leisure spaces	Contemporary facade	Lake and park	Waterfront development	Enhancing outdoor experiences	Community well- being	Environmental sustainability
The Malmö Saluhall	Open and flexible market space	Decorative facades	Courtyard garden	Market hall	Supporting local food culture	Vibrant community hub	Economic impact
The Rural Studio	Functional and sustainable designs	Vernacular elements	Natural materials	Community-based projects	Addressing social issues	Empowering communities	Social impact
The Vlotwateringbrug	Integration with landscape	Sculptural forms	Waterway and greenery	Pedestrian bridge	Enhancing connectivity	Aesthetic appeal	Integration with infrastructure

2.5. A conceptual model based on the results of empirical research to be applied in the experimental design of the development of the territory of the former military base in Karmėlava

User involvement and evaluation are one of the most important starting points of the conceptual model, starting with a chain of elements that, when brought together, **could lead to a near-perfect conceptual architecture and implementation.**

Based on the analysis of the results, the first element - the elements and design principles that meet the needs of users - has been identified as the key elements of architecture and design that have a positive effect. The conceptual model identifies the relationship between all the elements identified in the analysis, including the idea of **human-centered design and its importance, which also provides additional conditions for the development of better architecture, which can be said to be part of the balance between practicality and aesthetic design**, and the relationship between physical and emotional boundaries in architecture.

The second element is accessibility and the boundaries of territories, focusing on the accessibility ofspaces on foot or by bicycle, the distinction of key points. The location of the area and its already foreseen development plan posed a challenge to reconcile the industrial zone with the temporary accommodation, tourist, and recreational potential zones, which could be addressed through the urban village principle and the separation of zones, thus not creating inconveniences for users. Also, biophilic design and the importance of nature are very important in the conceptual model, as the area is wooded, with a lot of greenery and natural elements, and the development of the area is directed towards this area. Therefore, **the development of the natural areas must be one of the most important stages in the design and development of the site.** Also, the conceptual model is based on the results of the analysis to avoid unpleasant, unpalatable, unattractive, bad-feeling elements and design principles provided by the users, but focuses on positive elements that can lead to a smoother and more precise design process.

Targeted areas must therefore be given targeted emphasis and attention, and areas and elements thathave been identified as unsuitable for use must be given appropriate attention, either not to be used,or to be re-examined in a targeted manner during the design and development of the site.

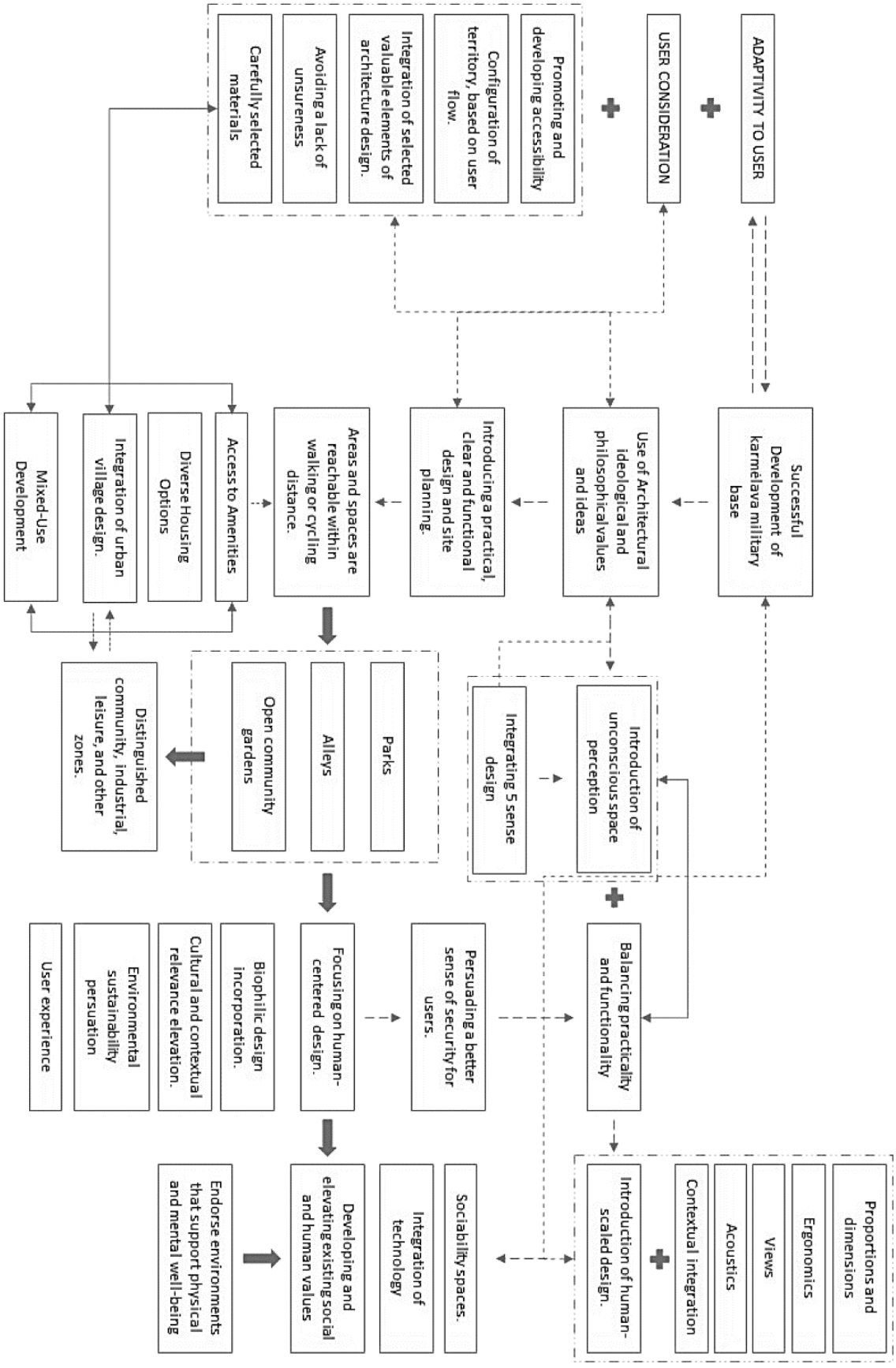

Fig. 24. Conceptual model. (Džiaugys, 2023)

3. Exploring architectural possibilities: Investigating line movement, deconstruction, and shape manipulation.

3.1. Determening the standard linear movement.

In order to further substantiate and deepen the results of the study, it was decided to carry out a complementary study with the main objective of investigating the possibilities of line movement, deconstruction and shape manipulation in the creation of architectural forms and their application in the development process, with the theoretical basis of the theory of the "Shape grammar". Each part of the research consists of three phases - **selection of location and linear movement, deconstruction, and shape manipulation.** each phase also includes additional steps such as capturing the intersection of the shape points, relocating the shape points, and shaping the shapes or movement in the axes, and experimentally attempting to construct spaces out of the intersections of the lines.

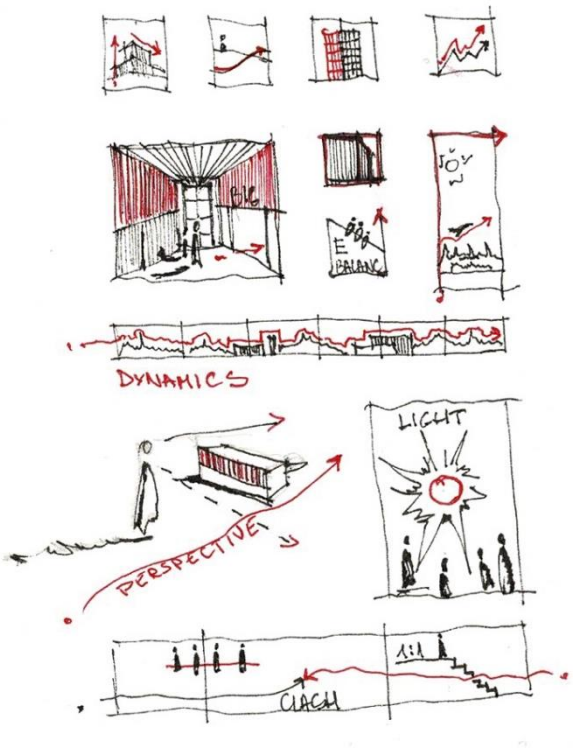

Fig. 25. Drawing of the conceptual idea (Džiaugys, 2023)

During the research described above and the analysis of the selected area, it was noticed that the area and its surrounding roads are characterised by a clear architectural linear language - a clear direct intersection of lines, steep and low-turning lines, and therefore it was chosen to follow the road up to the area and to use the linear language as an exemplary model for research. Nine road sections leading to the site were selected as suitable and containing the required amount of information, while at the same time photographs of those roads were selected for direct conversion into lines and diagrams.

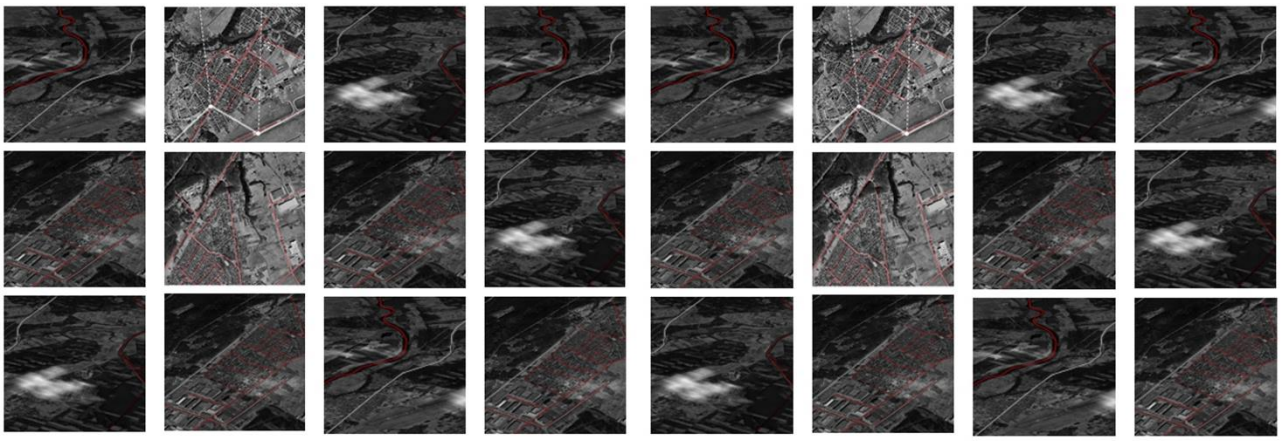

Fig. 26. Repetition of lines in surrounding cities. (Džiaugys, 2023)

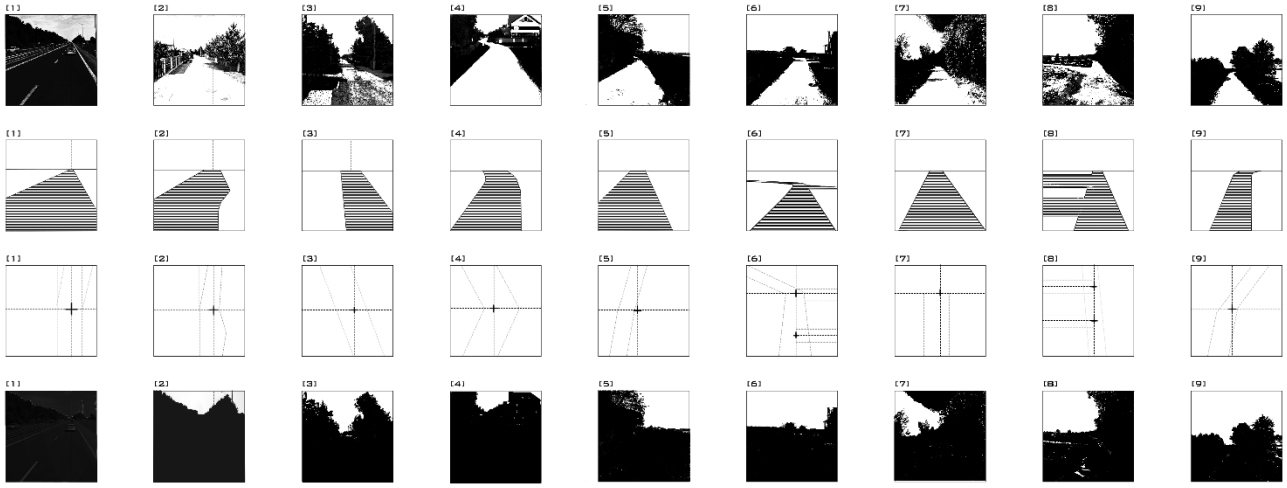

Fig. 27. Simplification of line movements through Point of view. (Džiaugys, 2023)

Figure 24 shows photographs of nine different but consecutive sections of road from which information of relevance was extracted to start and continue the research. A portion of each photograph was converted into a black and white silhouette to identify and delineate the road sections, while at the same time, the delineated portion of the road section was translated into a plan view rendered on the X and Y axes. The lines on the axes were used in the shape manipulation stage of the subsequent study. Based on the information obtained in the initial photo deconstruction phase and the delineation of the movement of the lines, the second phase of the study attempted to merge and manipulate the shapes by later transferring them on the X and Y axes to extract the initial language of expression of the shapes, which was used for the development of the further study.

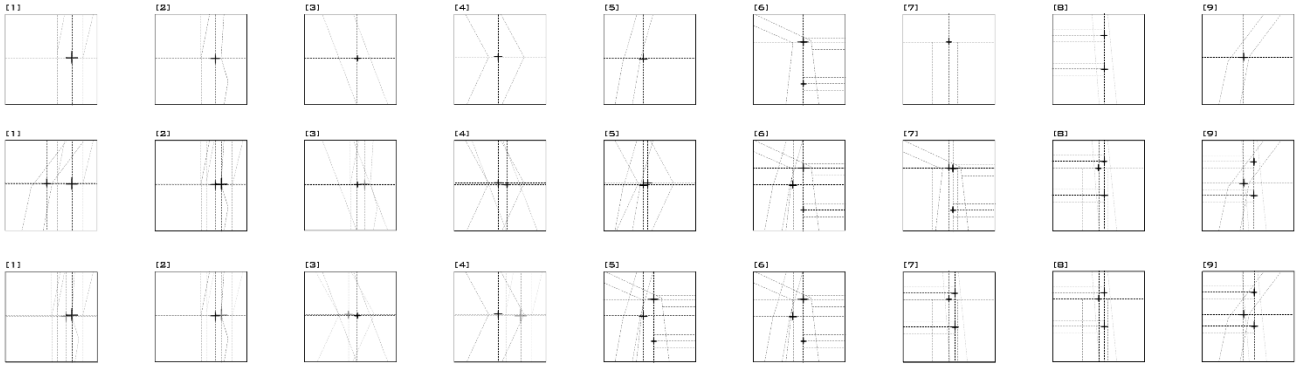

Fig. 28. Transformation of line movements (Džiaugys, 2023)

Figure 25 shows the three main stages of the search for forms - the results of the initial deconstruction (See Figure X), their transformation and manipulation.

3.2. Further investigation on shape forming through manipulation by implementing mathematical analysis.

After the primary findings, the research turned to an experimental exploration of forms and expressions through a practical test. The selected lines and their fragments are merged, translated, transformed, and shaped to create spaces that directly reflect the possible structures or territories in use. **Fig. 27** shows the transformed colour solution based on the initial results of the study, which directly reflects the aim of the experimental part of the study. At this stage, it was found that the optimal stage of line deconstruction had not yet been reached, due to the fact that the results were too small and inconclusive to be convincing and difficult to substantiate, i.e. **such experimental results could be obtained without additional parts of the study**, and therefore this part of the research was not considered as conclusive.

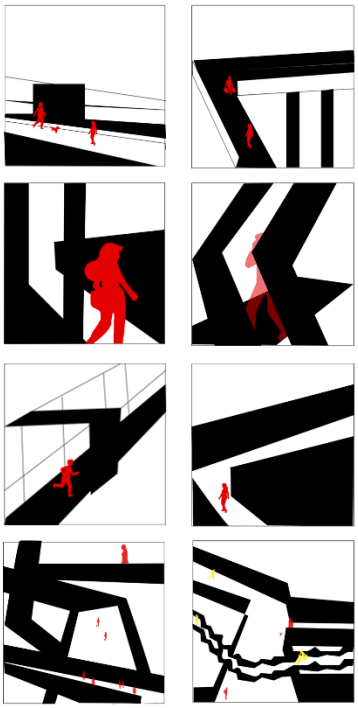

Fig. 29. Experimental analysis of the formation of spaces through chaos and clash. (Džiaugys, 2023)

Having identified possible further and existing shortcomings in experimental analysis, a further search for the results of the original form manipulation was undertaken, in other words, the initial findings were moved back to the original stage in order to discover and further explore possible variations in the search for forms and expressions.

Figure 28 shows the results of the same part of the analysis and the experimental analysis, which were not used in the main experimental design and in the design phases, due to argumentative limitations. Nonetheless, this experimental analysis provided a basis and additional information for understanding the main functions and stages in shaping spaces through motion deconstruction.

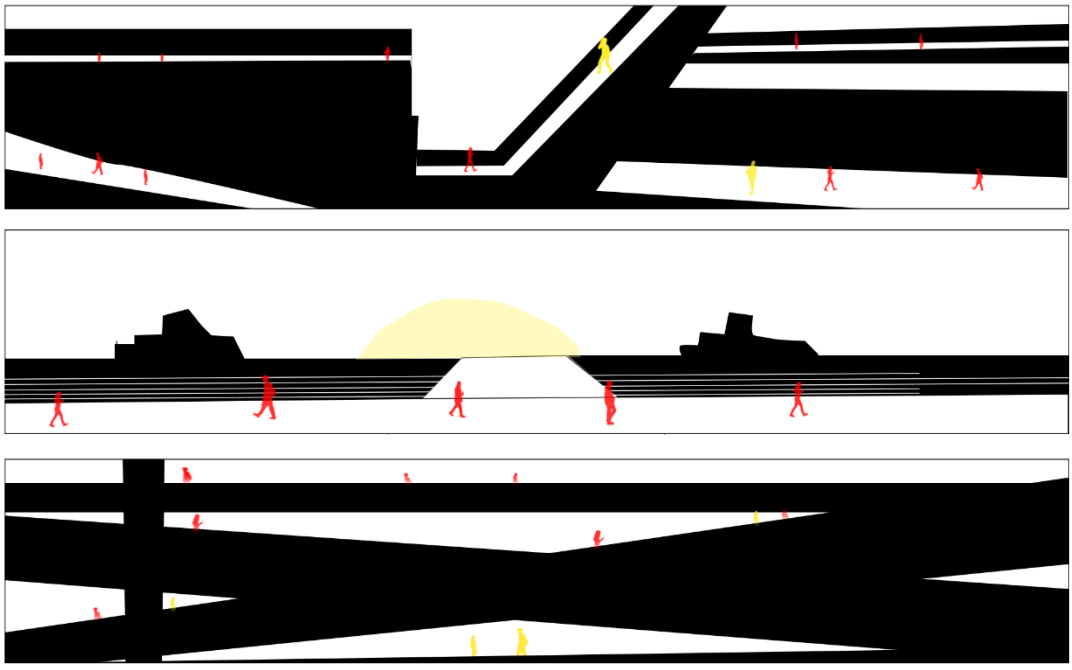

Fig. 30. Experimental analysis of the formation of spaces through chaos and clash. (Džiaugys, 2023)

The research was reoriented back to the first stage of the study to help avoid even the minimum functional and argumentative minima; to avoid this, the original results and the plan views of the line deconstruction were shifted onto the x- and y-axes, with the intersection points computed as the positive and negative values shifted onto the axes to produce the theoretically grounded results. Specifically, the intersection points of the planar intersections are now treated as mathematical values which, directly represent the appropriateness of the shapes in the results of the study, but even if the value is negative, it cannot be argued that the shape is not appropriate, or that the intersection points do not answer the main task and problem of the research part of the study, but such a hypothetical equivalence, raised in the course of the research, may well be the opposite of the above statements, in which case mathematical numbers could be evaluated in terms of **: 2 = -2**, -n = n.

Fig. 25. illustrates the direct relationship between the intersection of the interchanged and reshaped points of linear motion, forming the values that formed the basis for the next part of the study, which conveys the theory of shape deconstruction as well as shape manipulation.

The expression of the values on the axes is conveyed through the direct number of intersections, denoted as ***n***, in the transformed plan views. Each point is assigned default a value of 1, indicating its significance within the design context. However, at the points of intersection, the assigned value is determined based on specific conditions.

Mathematically, the value assigned to each intersection point, resembled as $\boldsymbol{V_{xy}}$, is determined by the following conditions:

1. If the intersection occurs without constraints such as alignment on the same plane and axis, the value remains positive, represented as $\boldsymbol{n = +1}$. This suggests a positive connections or integration between design elements.

2. If the points intersect in one plane and on one axis, the value becomes negative, represented as **n = -n**, which signifies a deviation within the desired points.

For example, considering the first stage of transformation where the first plan view was swapped with the second. If the resulting intersection points lie in one plane on the x-axis, the deformation results in a value of -1, indicating a contradiction or conflict within the connections or shapes. However, it is crucial to note that this result affects the overall sum value.

To calculate the value ***(C)***, the formula could be applied: $\boldsymbol{C = \Sigma V_{xy}}$. Where **C** is sum of all values, and $\mathbf{V_{xy}}$ is a value assigned to intersection point.

Exploratory calculation of defined points of respected shapes, not considering the current placement and values of real shapes:

- **Point one**: (1,1), (2,3), (6,7)
- **Point two**: (2,3), (4,5), (6,7)

Determining the intersection points between shape one and two. In this scenario, the intersection points are: (2,3), (6,7)

Thus, the sum of intersection values $\boldsymbol{C = V_{(2,3)} + V_{(6,7)} = 1+1=2.}$ The result indicates that there are two intersection points between point 1 and point 2 on one shape, with each intersection contributing

positively to the overall coherence. It is essential to consider that different shapes have different amount of interaction points that might or might not align on the same plane, even though they share similar values and elements, which then could be seen as:

- **Point one:** (2,3), (4,5), (6,7)
- **Point two:** (4,5), (6,7)
- **Point three:** (6,7)

As per conditions presented above assigned values for each point are - +1; -1; +1, which then results in ***(C)*** sum of the intersection values:

$$C = V_{(2,3)} + V_{(4,5)} + V_{(6,7)} = 1 + (-1) + 1 = 1.$$

Table 19. Additional calculations of intersection points and corresponding values. (Džiaugys, 2023)

Points	Coordinates	Value
1	(3,2), (4,2), (3,3)	+1
2	(5,1), (4,2), (5,2)	-1
3	(8,7), (9,7), (8,8)	+1
4	(4,3), (5,4), (4,4), (3,4)	-1
5	(6,5), (7,5), (7,6)	+1
6	(9,8), (10,9), (9,9), (10,8)	+1
7	(5,4), (6,5), (5,5)	-1
8	(7,6), (8,7), (7,7), (8,6)	+1
9	(10,9), (11,10), (11,9)	-1
10	(7,6), (8,5), (8,6)	+1
11	(3,3), (4,4), (3,4), (4,3)	-1
12	(5,2), (6,3), (5,3)	+1
13	(8,8), (9,9), (8,9)	-1
14	(4,4), (5,5), (4,5)	+1
15	(6,7), (7,8), (6,8), (7,7)	-1
16	(9,10), (10,11), (9,11)	+1
17	(5,5), (6,6), (6,5)	-1
18	(7,8), (8,9), (8,8)	+1
19	(10,11), (11,12), (10,12)	-1
20	(8,7), (9,6), (9,7), (8,6)	+1
21	(10,12), (11,11), (11,12)	-1
22	(6,5), (7,4), (6,4), (7,5)	+1
23	(8,8), (9,9), (9,8)	-1
24	(7,6), (8,5), (7,5), (8,6)	+1
25	(9,10), (10,9), (10,10)	-1

The conditions created are applied to ensure accurate alignment of points and shapes:

1. **Positive coherence:**
    - If OCS > 50%, the transformation is considered to have positive coherence. Which result in higher values indicating a better coherence.
2. **Negative coherence:**
    - If OCS < 50%, the transformation is considered to have negative coherence. Lower values indicate a poorer coherence.
3. **Neutral coherence:**
    - If OCS = 50%, the transformation is considered neutral, with en equal distribution of positive and negative values.

In order to justify conditions additional calculation formulas of intersection values (**C**) have to be integrated into process:

1. Calculation of intersection values (**C**):
    - As previously described: $\mathbf{C = \Sigma V_{xy}}$
    - Where C is the sum of all values, and $\mathbf{V_{xy}}$ is the value assigned to each intersection point.
2. Overall Coherence score (**OCS**):
    - OCS = $\mathbf{C_{positive} / C_{total} * 100\%}$
    - Where $\mathbf{C_{positive}}$ is the sum of positive intersection values, C total is the total sum of intersection values.

Grouping is also based on direct coherence scores and can be described as:

1. **High Coherence group:** Transformations with OCS > 75%
2. **Moderate coherence group:** Transformations with 50% ≤ OCS ≤ 75%
3. **Low coherence group:** Tranformations with OCS < 50%

Example evaluation of two randomly selected tranformations:

Transformation 1:

- $\mathbf{C_{positive}}$ = 20
- $\mathbf{C_{total}}$ = 30
- **OCS** = 20/30 * 100% = 66,67% **(Moderate Coherence)**

Tranformation 2:

- $\mathbf{C_{positive}}$ = 4
- $\mathbf{C_{total}}$ = 14
- **OCS** = 4/14 * 100% = 28,57% **(Low coherance)**

Therefore, all scores were calculated on the basis of the conditions and formulas used to determine the coherence values and classification of all 25 points. (For results see **table 19**)

Table 20. Additional calculations of intersection points and corresponding values. (Džiaugys, 2023)

Tranformation	Value	Group
1	70,83%	High coherence *
2	63,64%	Moderate coherence
3	53,33%	Moderate coherence
4	57,69%	Moderate coherence
5	64,29%	Moderate coherence
6	66,67%	Moderate coherence
7	46,67%	Low coherence *
8	60,00%	Moderate coherence
9	61,11%	Moderate coherence
10	45,83%	Low coherence *
11	65,00%	Moderate coherence
12	65,38%	Moderate coherence
13	68,42%	Moderate coherence
14	62,96%	Moderate coherence
15	61,54%	Moderate coherence
16	60,71%	Moderate coherence
17	60,00%	Moderate coherence
18	68,18%	Moderate coherence
19	68,75%	Moderate coherence
20	62,50%	Moderate coherence
21	63,64%	Moderate coherence
22	66,67%	Moderate coherence
23	68,54%	Moderate coherence
24	60,00%	Moderate coherence
25	63,64%	Moderate coherence

Grouping these values together shows that almost 85% of all manipulated shapes fall into the category of moderate coherence, which is open to interpretation, but the results show that the shapes are generally suitable, but that other manipulation principles or process improvements would be needed to achieve better results. Nevertheless, based on these calculations and the conditions outlined above, which validate each manipulated shape and form, it is concluded that the model is able to identify positive and negative values for each transformed shape pattern, which can be used as a guide for selecting the most appropriate shape patterns for design. These calculations result in a mathematical model that can go from -2 to 2 (-2, -1, 0, 1, 2) consecutively, which means that almost every second transformed shape model has the same value as every second model, to avoid this duplication, the mathematical calculations result in the grouping together of the duplicate values, where they are recalculated by transforming the current states of the models.

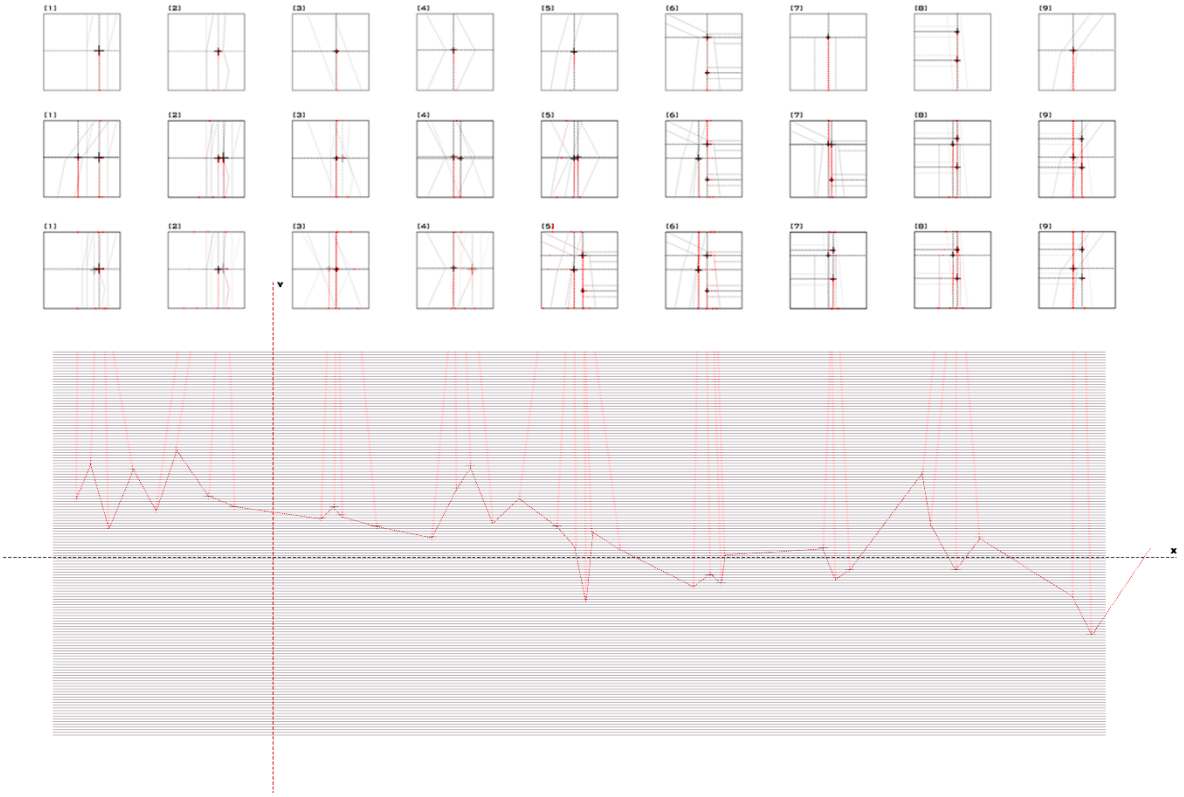

Fig. 31. Conveying linear motion on axes through shape manipulation and mathematical calculation. (Džiaugys, 2023)

From the above diagram it can be seen that the shapes depicted in the plan line images are arranged in descending order, with the corresponding sharp increases at values = n. The first projection from left to right is the most positive, as the y-axis passes through the value 0 a steady but not sharp decrease in the positive values can be seen, indicating that the fit of the shape transformation decreases exponentially on stages 2 and 3, however, the sharp increase in values at stage 4 indicates a significant improvement in the alignment of shapes, suggesting a more cohesive and harmonious form. However, the result obtained was attempted to be verified by a further experimental complementary study (see **fig. 30**), attempting to take the values recorded in the X and Y axes and translate them into three-dimensional values that would directly and proportionally shape the three-dimensional space, the validity of such a shaping and the validity of the insights gained from such an experimental approach for use in the experimental design phase.

Fig. 30. is a direct result of transposing the values of the axes onto the x and y axes by manipulating the shape several times, however, such a result is only partial and cannot be argued due to the insufficient results in the research part, so such a result and the experimental test can only be regarded as an artistic part of the research. Nevertheless, the study found that such experimental tests help to establish the validity of the use of such a method in later research parts.

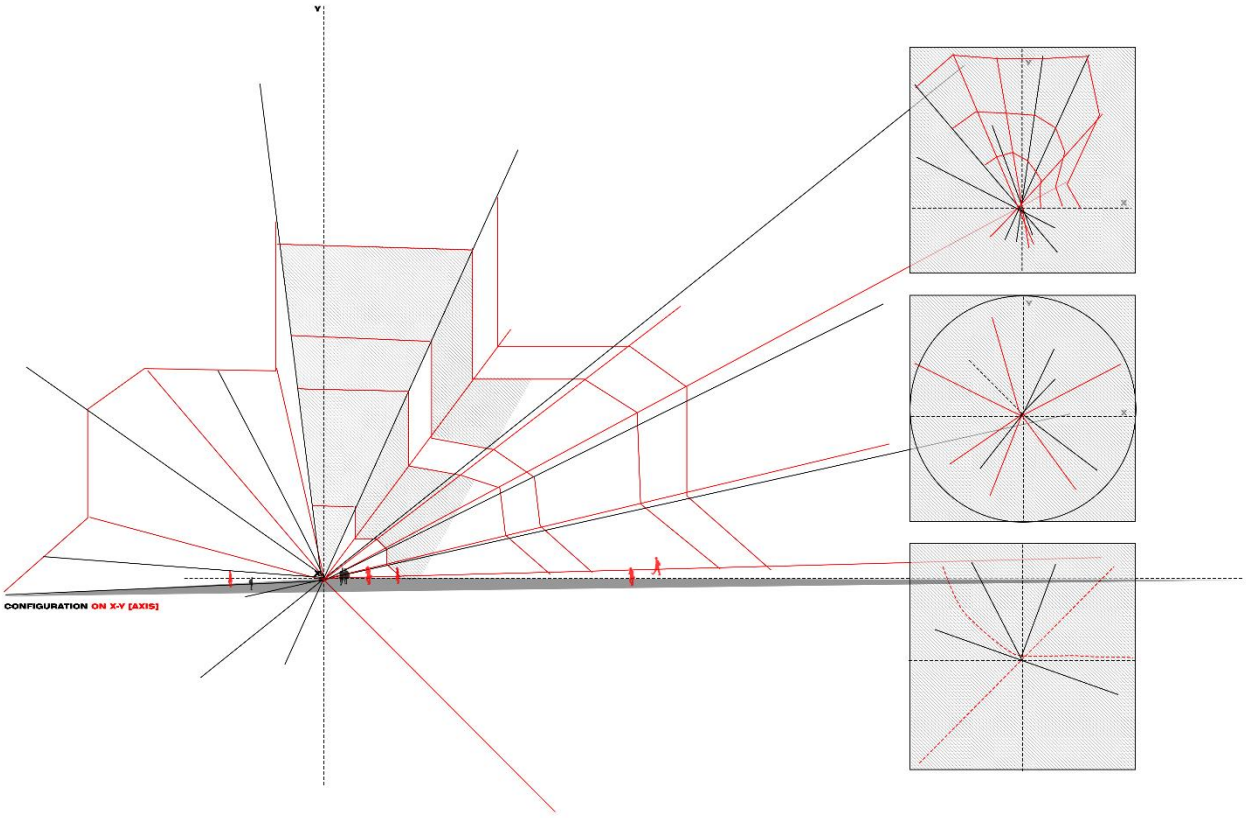

Fig. 32. Configuration of formation values on x and y axis. (Džiaugys, 2023)

3.3. Grounding shape manipulation based on shape grammar theory

Shape grammar can be briefly summarised as a generative formalism based on changes in shape dynamics. While the application of this approach is still an unsolved problem, the quickest solution to such a problem is the adoption of a generic form (Jowers, Earl, Stiny, 2019) However, this approach has been used as a key theoretical and practical tool to maintain the continuity and validity of part of the study. This part of the study focused on the targeted application of the form deconstruction method, i.e. the selected pre-existing forms are deconstructed and further manipulated on the basis of the rules set out in the theory, which in this case have also been modified in this part of the study in order to be suitable for application to the present research part. Also, in this part, additional forms are included which come from a fragment of the Lithuanian vernacular script.

As can be seen in **Fig. 31**, a fragment of the folk pattern (1) was selected for the study, and the shapes and fragments to which the shape grammar shape manipulation and dynamics change method (2) will be applied are identified, and in the last stage (3), additional and excessive or unnecessary information is removed from the pattern, such as colours, shading, additional or non-repeating patterns. In order to make the study meaningful and to change the dynamics of the shapes in the correct way, the most recurrent results and diagrams from the first part of the study (see **Figure 24**) were selected from the most recurrent manipulation of the plan view and linear motion. Based on the selected information, the fragments of the national pattern were combined with each other, regardless of the width, size and

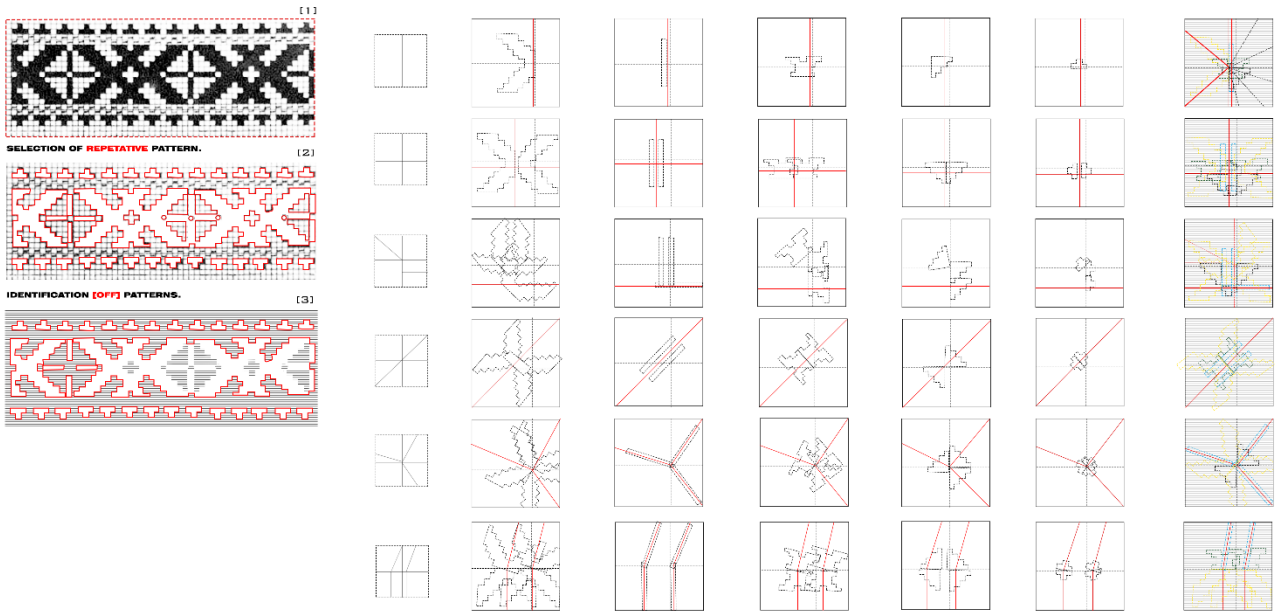

Fig. 33. Deconsturction of line movements from Lithuanian folk patterns. (Džiaugys, 2023)

dynamics of the shapes. As Stiny (2006) puts it, the variables x and y can have completely different values and parameters, but at the same time it is sufficient for the variables x and y to be shapes. As per **see x -> do Y**.

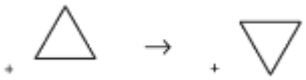

Fig. 34. Triangle rotation rule (Stiny, 2019)

Fig. 35. formed shape (Stiny, 2019)

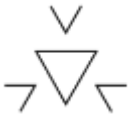

Fig. 36. reformed shape within two stages (Stiny, 2019)

Figures 32, 33 and 34, refer to one of the simplest shape grammar rules, which can be used to reform the shape in two stages and produce almost three different results. The same principle was followed during the study for modifying and reforming the shapes in **Figure 31**. Additional set of rules were developed to provide a targeted justification for shape manipulation during the study. **Those rules are as follows**:

Table 21. Innitial set of rules. (Džiaugys, 2023)

Nr.	Replacement rule	Subdivision rule	Tranformation rule	Repetition rule
1.	A -> B	A -> BC	A ->f(A)	A ->A1A2...An
2.	Replace shape A with shape B.	Divide shape A into two parts, B and C.	Apply transformation function f to shape A.	Repeat shape A multiple times to create more complex pattern.

Application of innitial set of rules goes as follows:

1. Initial shape – A.
2. Application of 1st. Rule: A -> B (replacement) – Replace initial shape A with more complex B.

3. Application of 2nd. Rule: B ->C-D (subdivision) – Divide shape B into two parts C and D.
4. Application of 3rd. Rule: C ->E (replacement) – Replace the part of C with different shape E.
5. Application of 4th. Rule: D ->D1D2 (repetition) – Repeat part of D to further the variation.
6. Application of the 5th. Rule: E ->f(E) (transformation) – Apply a transformation function f, to shape E for extra added complexity.

By applying these sets of rules and following the patter we can create and generate sequences n of shapes for an infinite number of times, and search for specific shapes and patters and would and could deepen the research part. To add depth and complexity to the study, an additional set of rules include

Table 22. Additional set of rules. (Džiaugys, 2023)

Step	Rule	Description
1.	Initial shape: A	Starting of with the initial shape A.
2.	Applictaion of first 5 initial set of rules	Applying all 5 one after another initial set of rules.
3.	Change -> Change (F)	Apply a change method for the entire shape.
4.	Push through -> Push through (G)	Apply a pushing through method either with selected patter or shape to create shape G.
5.	Extract -> Extract (H)	Extract a portion of G shape to combine shape H.
6.	Bend ->Bend (I)	Apply a bending methond to shape H to create shape I
7.	Enlarge ->Enlarge (J)	Enlarge shape I to create shape J
8.	If needed, and if more results are needed all initial 5 first set of rules could be applicable to create more patterns and shapes.	

The rules described in **Table 22** were used not only as a theoretical basis for the study, but also as one of the main aspects of the practical part of the study to generate new forms and shapes for architectural design.

In **Figure 35**, the same theoretical and practical approach is applied by extracting the values and evaluating the intersection points of the shapes with mathematical values (shown in **Figure 31**) in order to map them onto the X and Y axes, an approach that has provided additional information in the study on the applicability of the shapes and the validity of the method to the research process. In the same way as in **figure 30**, the results obtained on the axes were superimposed on a single plane on the x and y axes in order to evaluate the results and to translate them into a three-dimensional space, with the positive and negative aspects of the study being evaluated in the same way.

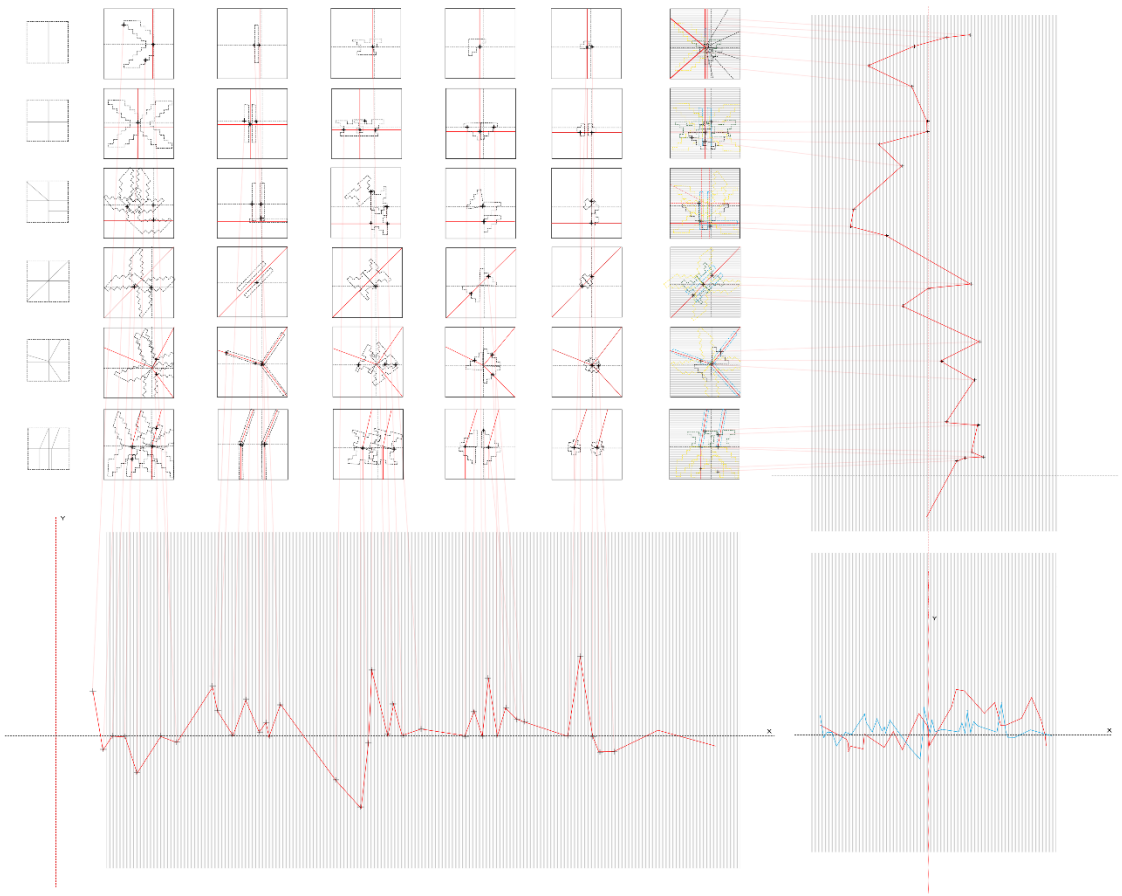

Fig. 37. Axing of line movements through shaping. (Džiaugys, 2023)

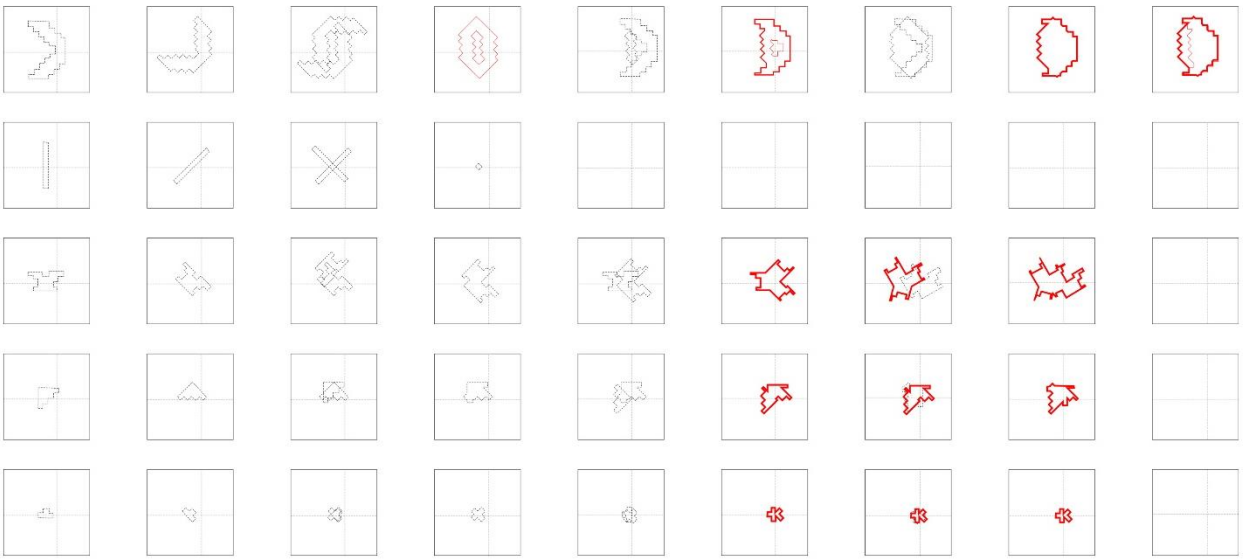

Fig. 38. Form manipulation simplified diagram. (Džiaugys, 2023)

Explanation of Fig.35:

From left to right -> Initial form/shape (A) -> first modification (Rotation, change, subdivision) -> repetition of form/shape (A) -> A1A2 -> Shape (B) -> Application of priamry modifcations -> (Rotation, change, subdivision, extraction, bend) -> Shape (C) -> if needed application of primary and initial set of rules to initiate process again.

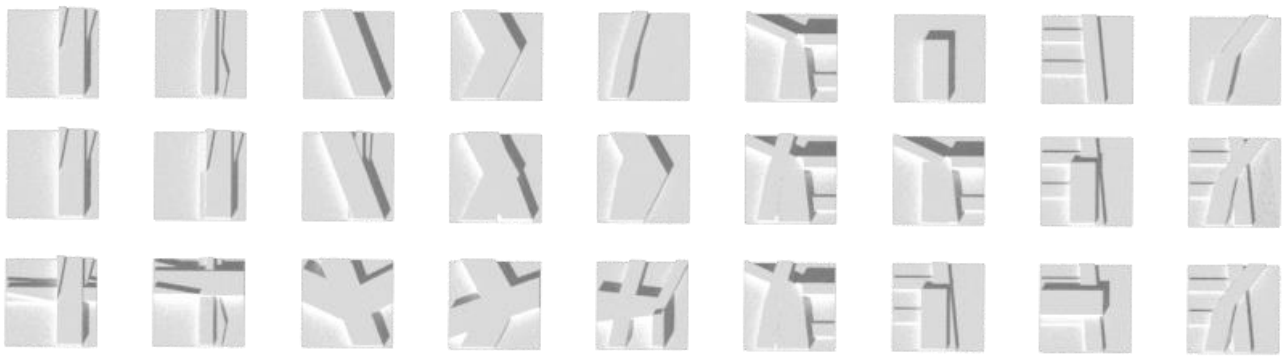

Fig. 39. Set of results resembled in 3d format. (Džiaugys, 2023)

The results of this part of the study provide a fundamental basis for the last part of the study, as they indicate that this method of shape manipulation is not only possible when the result reaches a positive value = n, but also when the result reaches a negative value = -n, due to the rules outlined above (see **table 19** for further information). Also, these preliminary results show that the shapes and expressions obtained by shape manipulation c an be directly used as a basis for the development process (see **Figure 39**)

Part IV – Summary and final results.

It was found that the parts such as (see **figure 37, 31, 32**) and their elements were found to be unsuitable and therefore ineligible for further application, however, they were considered as practical experimental tests which had no direct influence on the final results of the study. However, the results of the study reported in **Figures 38, 33** have been verified and the results have been formulated in such a way that they are suitable for use in further experimental design phases.

At the end of the research, it was decided to test again the validity of the results obtained through the prism of design, two random shapes were chosen and shaped into architectural objects. It is also important to mention that the experimental design was carried out without taking into account the brief, objectives and hypotheses, the main purpose of this design was to check whether the results obtained could be really applied in the design process.

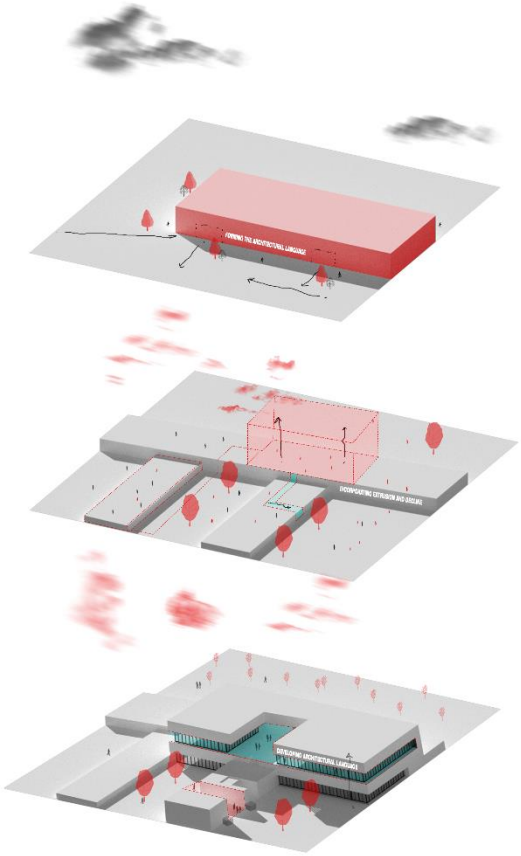

Fig. 40. Experimental test design diagram (Džiaugys, 2023)

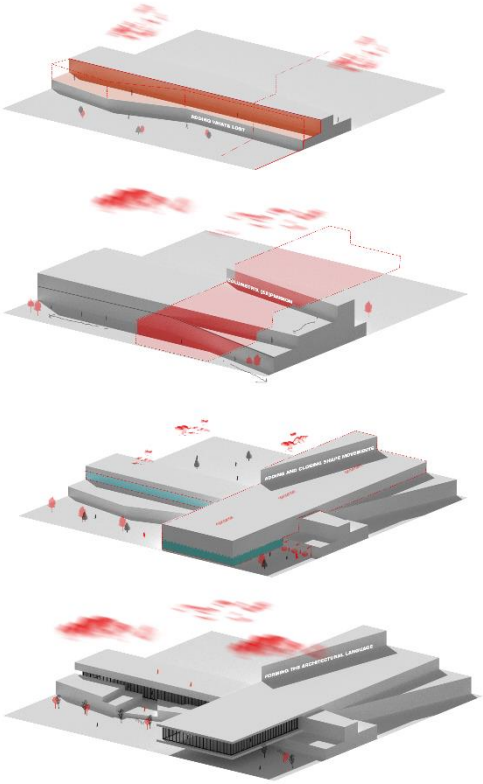

Fig. 41. Experimental test design diagram (Džiaugys, 2023)

Figures 40 and **41** demonstrate an experimental design based on the results, which is not based on the ideology of the main project; similarly, the shapes have been found to directly answer the questions posed, and the most appropriate shapes have been found to be the most appropriate shapes, even though they have not been reduced a maximum of times, and all the shapes have been found to be characterised by elements or details that are favourable to change, i.e. they are easy to modify, to deconstruct, to add, to take out spaces or areas, and to include additional elements. This can be taken as one of the most significant results of the study.

Overall, the results are in line with Stiny's concept of shape grammar, as they show how rule-based transformations can be used to create different architectural forms. Nevertheless, the study also extends this framework by including experimental tests to validate the applicability of these forms in design practice, it is worth noting that while the results of the study show that there is considerable scope for the manipulation of forms in an architectural design or process, it is important to keep in mind that the applicability of these findings may vary depending on contextual factors such as location or user preference. Future research could further investigate additional factors that may have a direct influence on the appropriate stage of shape manipulation, as well as further exploring the principle of shape manipulation itself, in order to gain a better understanding of shape manipulation in practice.

4. Application of research results in the experimental design of the development of the former Karmėlava military missile base.

The former Karmėlava military base can be distinguished as one of the most important and secret military infrastructures in occupied Lithuania at that time. However, such a legacy is twofold, reflecting not only the strategic importance of the base, but also revealing architectural and environmental problems. This is why the architectural footprint of this base is a testimony to an era characterised by the morphotype of military infrastructure development in the Soviet Union - a disregard for social, ecological, economic and architectural norms.

Despite these challenges, the study has revealed the important geographical location and development potential of the former Karmelava military base. However, both quantitative and qualitative studies have confirmed that the original development of the base was not based on any social and architectural standards, and the ecological damage caused only confirms the fact that the sensitivity and ecological coherence of the site was not respected. The analysis of the results of the study has led to a systematic synthesis, in line with architectural design models, which can be directly applied in the subsequent phases of development. Although the methods and results of the application of the study have been modified on the basis of the original findings in order to avoid and reduce the inaccuracies that have arisen during the application of the experimental guidelines, their modification does not alter the original conclusions. It is also very important to note that the success of the application of these results in the architectural model is directly dependent on the intended function and the direction of the development, and therefore additional modifications may be envisaged depending on the direction.

Therefore, the research considered a number of different development paths:

- Development of a pilot training, accommodation and aeronautical, aviation technology research laboratory complex (occupying the main part of the site, as well as encouraging companies to set up and develop aviation technology and related research.) Adding parts of the Accommodation and Training Complex for pilots and flight attendants (Relocating their current accommodation from Kaunas).
- Logistics and warehousing complex (without accommodation possibility)
- Renewable energy and development research centres and complexes.
- Agricultural development and research centres and complexes (With the aim of attracting businesses and researchers, setting up laboratories for the development of sustainable agricultural technologies)

In addition, the study also considered the potential development of a national defence centre and/or military base (NATO or Lithuanian Armed Forces Headquarters), including architectural adaptations based on the study's results and conclusions.

Thus, in order to choose the right development function, all possible development options had to fulfil, or at least partially fulfil, the conditions set out:

- Location and accessibility.
- Availability of public and other transport
- Adaptation of the function area
- Impact on society and citizens
- Long-term sustainability

– Potential for accommodation
– Ability to make use of existing infrastructure
– Connectivity to nearby functional areas.

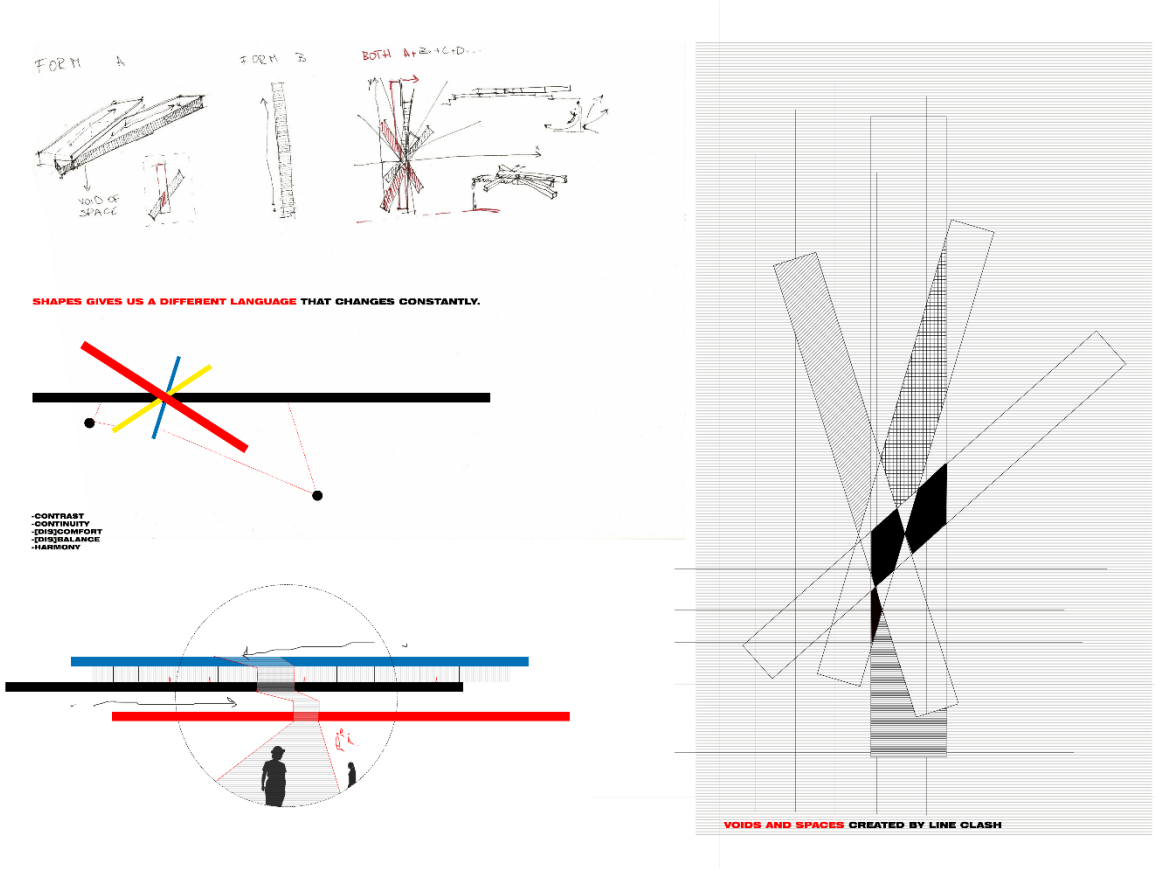

Fig. 42. Linear movements conveyed to forms and shapes. (Džiaugys, 2023)

However, after a thorough assessment of all possible development options under the conditions set, it was decided to proceed with the expansion of the military base on the site. It is very important to note that the application of the results of the studies carried out has been systematically verified and implemented only after ensuring the appropriateness and effectiveness of the chosen development path. It is important to note that it is not possible to apply the results of each research stage, so all the results have been systematically systematised and applied in a targeted way to obtain the most accurate results.

4.1. Relevance of site and location.

The site selection was based on the results of quantitative and qualitative research parts, which established the historical and current importance and value of the former karmėlava military base, and additional analysis identified the geographical importance of the site, the studies are grouped according to importance:

1. **Situation analysis**. The situation analysis included not only a study of local but also national infrastructure and its accessibility, a study of the different road surfaces, their distances, a

percentage assessment of the suitability of the matches, as well as a thorough study and mapping of the pedestrian paths leading to and from the development area. (For results, see **fig. 43**)

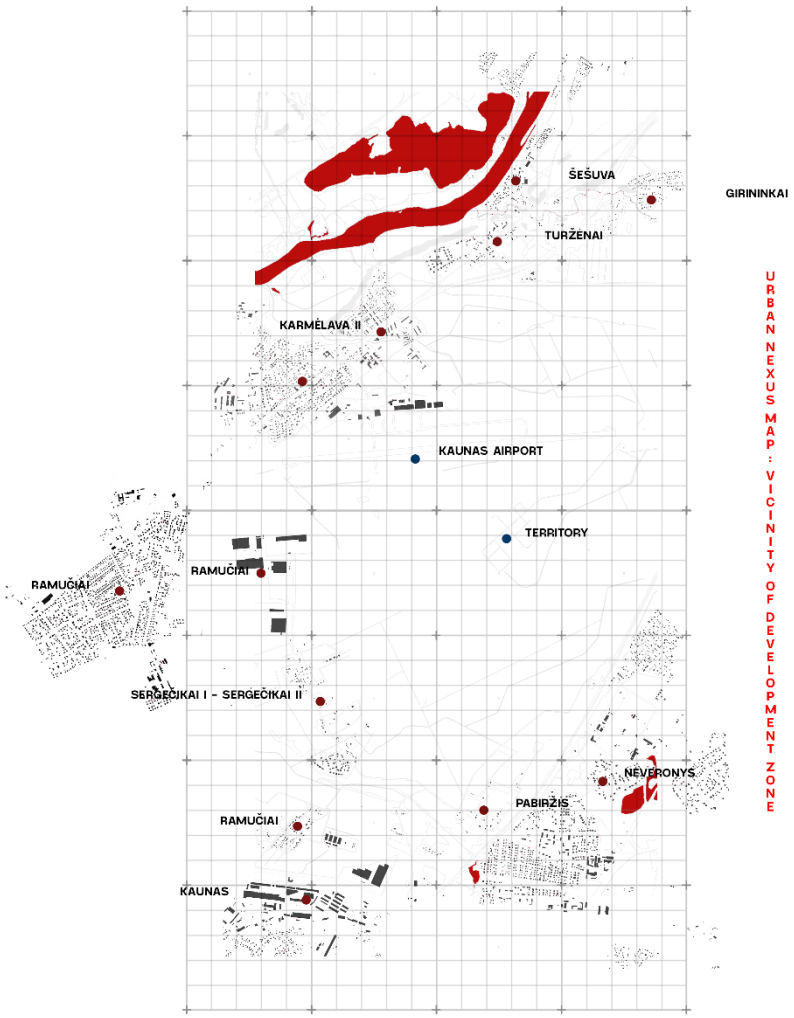

Fig. 43. Situation plan. (Džiaugys, 2023)

The territory is surrounded by 10 towns and settlements of different sizes, the Kaunas International Airport is a strategic infrastructure object, there are also train tracks in the vicinity of the territory, and in the near future the same track is to be developed into an even better and strategically important rail - baltica line, The settlements of Karmėlava I and Karmėlava II have the biggest influence on the territory, The airport and nearby warehouses and businesses, as well as the fact that access to the site was found to be difficult and undeveloped, although according to the most recent spatial planning data, there are planned LEZ II developments and sites in the vicinity of the site, so it can be anticipated that the site's influence will change dramatically. There will also be opportunities for access to the site. The situational analysis also showed that the site is surrounded by woodland, which in turn gives the site a guarantee of secrecy and security. **In summary, the former military base at Karmėlava is not only in a strategically important position, but also in an area of high geographical influence.**

2. **Road and Road infrastructure analysis.** During this analysis all pedestrian, car, train or any accommodating paths and roads were analysed in order to point all roads leading to and from site, also analysis aimed to point out most active roads and road sections. (For results, see **fig. 44**)

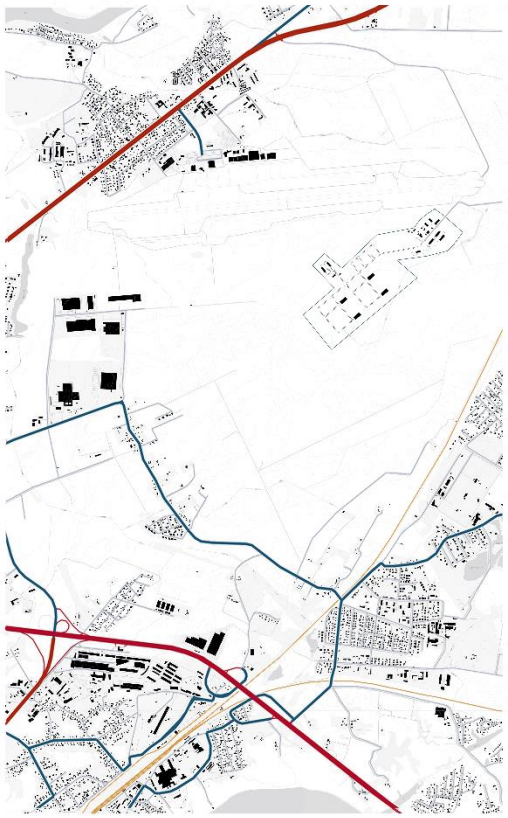

Fig. 44. Road and road infrastructure analysis. (Džiaugys, 2023)

The road and road infrastructure analysis identified - Major major and more active road sections (Blue), train tracks and directions (Yellow) and major arterial and national roads (Red). Although local roads (Grey) are abundant between towns and settlements, none of them lead directly into the area, and there are particularly many footpaths that can be used to reach the Tertiroia and its surroundings, but walking along forest paths is not guaranteed and is not accurate. It has therefore been identified that the road infrastructure leading to and from the site should be improved and connected to the main road network.

3. **Infrastructure analysis.** The proposal includes a review and analysis of nearby facilities and their functional significance, as well as the identification of potential conflicts between the different functional zones in the course of or after the development, and the investigation of potential access points to water, electricity, gas and sewerage lines directly and indirectly within the development area. (For results, see **fig. 45**)

The site is not well developed, with no electricity, water, sewage or other networks. Such networks are only developed in the surrounding towns and the nearest electricity supply is available near the western part of the airport. The analysis has shown that this lack of infrastructure can create additional problems in the design process, and that in order to avoid this it is necessary to take into account and design new or connections to the existing nearest engineering infrastructure zones and lines.

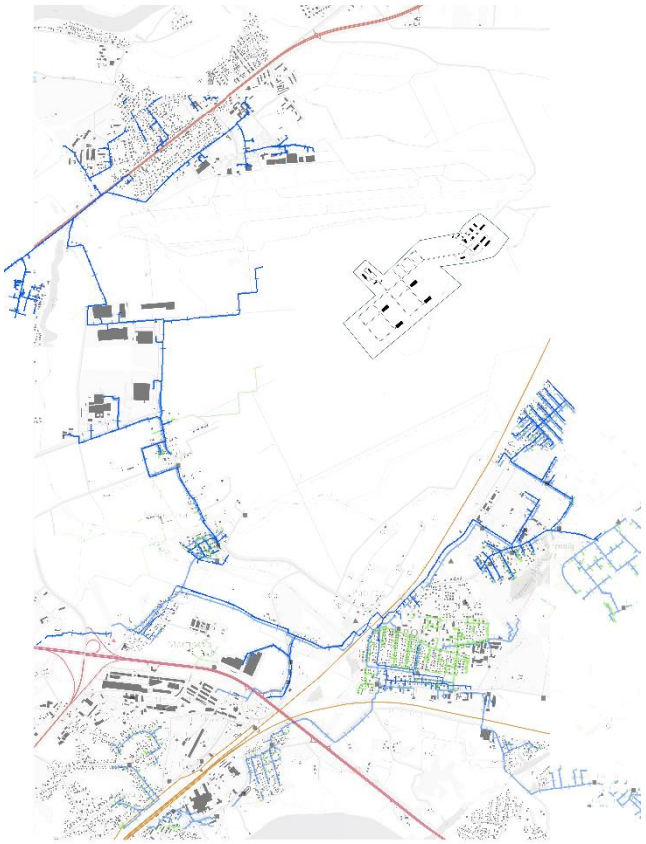

Fig. 45. Infrastructure analysis (Engineering). (Džiaugys, 2023)

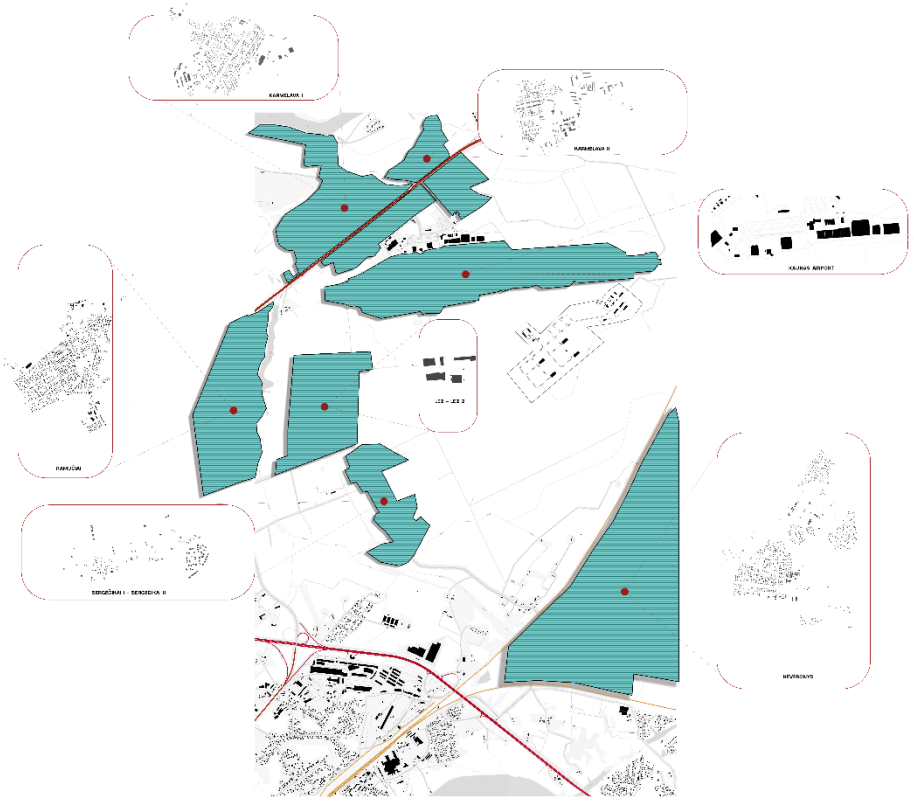

Fig. 46. Strategic and Critical infrastructure. (Džiaugys, 2023)

4. **Critical infrastructure**. This analysis was designed to examine not only the proximity and accessibility of the surrounding existing infrastructure, but also to examine the distance of strategic infrastructure from the military base area. (For results, see **fig.46**)

In addition to these, further assessments have been carried out for the following categories:

1. **Security and defence.** This part of the additional study analysed the security implications of the site's location, taking into account its proximity to potential threats, natural boundaries, and the defensive capabilities and requirements of the base, and also examined the military site's ability to provide additional protection for military assets. (For results, see **appendix 6**)

2. **Strategic alignment**. This section examines the phases of development of the existing military base and their compatibility with the development ideas and operational requirements of the Lithuanian Armed Forces, and also analyses the strategic and military facilities in the vicinity. (For results, see **appendix 6**)

3. **Community engagement.** An additional study was carried out to investigate the potential impact of the expansion of this military base on nearby communities and towns, assessing the potential proportionate or disproportionate harm to life caused by the expansion of the military base. (For results, see **appendix 6**)

4. **Future development and expansions possibilities**. Assessing the opportunities and factors that may influence the future development of the military base, identifying the limits and opportunities for expansion, in order to provide a focused assessment of the current development potential. (For results, see **appendix 6**)

5. **Distances**. The analysis looked not only at the main roads and footpaths, but also at distances to and from critical consumer facilities, hospitals, shops, nearby towns, access and travel times. This was one of the most important criteria for the final decision and choice of the site's functionality. (For results, see **appendix 6)**

6. **Climate**. The geographical situation has led to an assessment of the direct influence of the climate on the site, and the analysis of possible layouts for architectural features in the light of the results obtained in the studies, which show that, although the prevailing climate in the region is the same, the forests surrounding the site provide additional opportunities for the development of more open or similar types of sites and features. (For results, **appendix 6**)

7. **Forest management and natural environments**. The analysis sought to examine the extent of the existing natural and wooded areas in order to identify the most suitable locations for the development of key components of the military base infrastructure. Additionaly, analysis also uggests locations where woodland should be developed and greenfield sites should be extended. (For results, **appendix 6**)

4.2. Design framework for the development of the former Karmėlava military missile base site

The whole design process was based not only on the aim of successfully completing the development of the territory of the former military base in Karmėlava, but also on the application of the results of all the research, which would contribute significantly to the development of the architectural part of the site, as well as putting an important emphasis on the search for solutions to the metaphysical and philosophical questions of design.

In order to achieve a successful development of the site, practical studies and analyses of the situation and the influencing factors were carried out, which contributed significantly to the overall understanding of the situation and the decisions that needed to be taken, and it was essential to decide on a targeted orientation, as it would ensure the viability of the function.

There are several key stages that guide the development of the design system - Function, zones, philosophical objectives, practical objectives, infrastructure, application of research materials and results.

Based on these phases, the design framework can be organised as follows:

1. **Function** - the function or direction of the function envisaged for the area and identified by the studies as the most successful. The elements and structure necessary for the function to function are identified and required.

   – Defininig intended function and purpose of the site.
   – Defining necessary elements and key factors required to efficiently support chosen function.

2. **Zones** - in adapting the chosen function, it is important to identify and map all the influencing zones that will operate as a single dimension, and once the zones are mapped out, the activities and development opportunities are identified, and a decision is made as to what is needed and how the area or site will be developed. It is important to note that this principle was also used for the development of Alternatives 1 and 2.

   – Mapping out zones of influence to understand the impact to the site.
   – Activity and use identification.
   – Plotting and alligment with function.

3. **Philosophical objectives (Metaphysical and other meanings)** - the research has identified architectural elements that influence human senses and the overall understanding and appreciation of the surrounding environment, and in this way the previously stated objectives are raised or used, for example: the aim is to achieve the language of architecture to allow people to feel more than just the materials or structure, the aim is to use architecture to allow people to feel spaces not only physically but also with all five sensory qualities of a human being. It is important to note that this stage is almost directly dependent on the choices and aspirations of the second. Once the goals are chosen and separated, a further direction of development is set, which goes hand in hand with the language of architecture.

   – Identification of architectural elements that evoke metaphysical and sensory experiences.
   – Using architecture to create spaces that transcend physical structures and materials.
   – Aim for architecture that engages all human senses, enhancing overall experience of a user.

4. **Practical Objectives -** all practical objectives are identified and envisaged to achieve and respond to the zoning and functional objectives, and this phase is important as it is one of the last design phases to ensure the relevance and success of the development. It is also important to note that the practical objectives are not only the basis for successful development, but also provide a strong direction for development.

   – Defining practical objectives aligned with zoning and function.

5. **Infrastructure, application of research material and results -** once all the above-mentioned stages and their objectives have been set, the last part of the project is developed; it is important to mention that infrastructure was not taken into account in the design of the alternatives, which resulted in the application of only the research material and results. The aim of this phase is also to ensure the full completion of the successful development of the area by integrating all the functions into a coherent whole and by filling in all the gaps with purposeful solutions.

The stages outlined above have been used to develop the alternatives and the site, and then the structure of the framework presented has been used to develop a common framework that may be suitable for similar sites.

4.3. Alternatives for a new complex on the planned site.

In total, three different alternatives were proposed as options for the development of the former military base in Karmėlava. Although all of the proposed alternatives could theoretically have been developed, it is important to note that all of the proposed alternatives were based on different phases of research and their results, and as a result, there were a number of inaccuracies and inconsistencies in the proposals, a lack of reasoning for the proposed hypotheses, and therefore, none of the proposed alternatives are based on the generalised results of the entire study.

The first alternative was based on the research material of the situation analysis and theoretical studies, however, until the exact direction of the development was decided and determined during the study, hypothetical attempts were made to find solutions for the development of a tank battalion. The situation analysis attempted to determine the impact of such a development on the region, on transport, noise levels, security, and the union of scale and connectivity with the surrounding infrastructure and facilities. The analysis of alternatives also considered the limits and problems that might exist.

Alternative 1. The first alternative proposed the expansion of the tank battalion and the corresponding military infrastructures to accommodate the battalion's activities. However, it is worth mentioning that this alternative was not researched enough to fully address the primary research topic and goals. It is important to note that during the development of the alternative, initial site and environmental studies were carried out.

Primary analysis consisted of:

- Analysis of the current state of traffic and road connections. (**See fig. 47**)
- Climate and other factors. (**See fig. 48**)
- Functional zoning of surrounding areas, land use. (**See fig. 49**)
- Utilities infrastructure - gas, electricity, water. (**See fig. 50**)
- Distances to nearest critical infrastructure (hospitals, etc.). (**See fig. 51**)

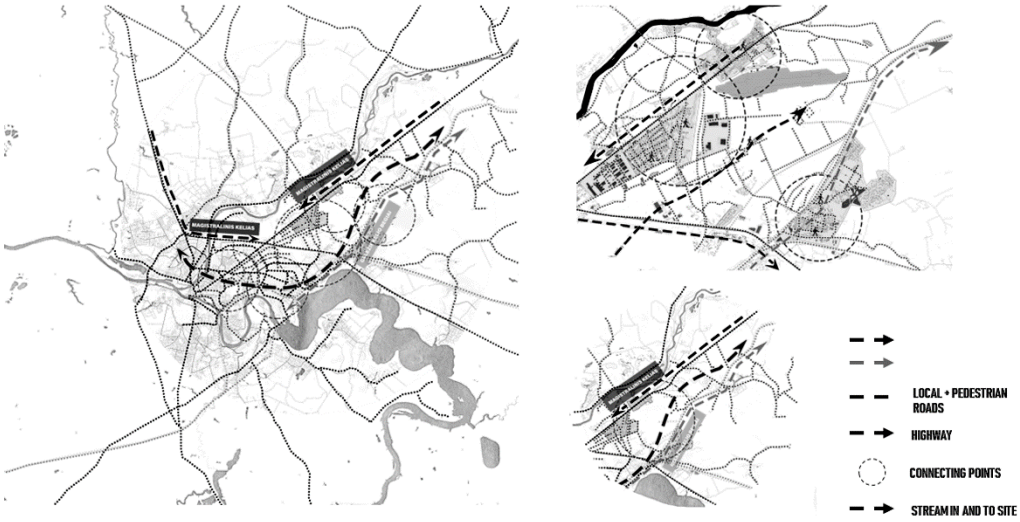

Fig. 49. Analysis of the current state of traffic and road connections. (Džiaugys, 2023)

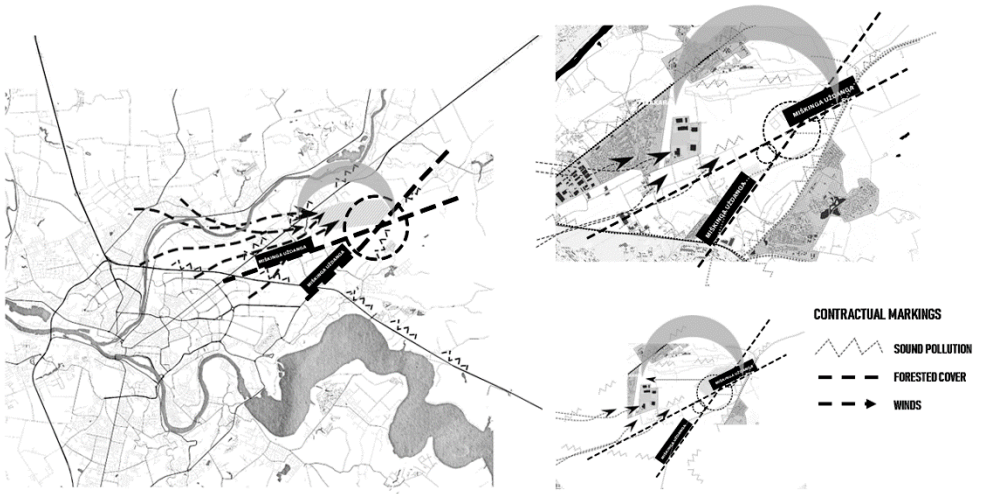

Fig. 48. Climate analysis and other impactful factors. (Džiaugys, 2023)

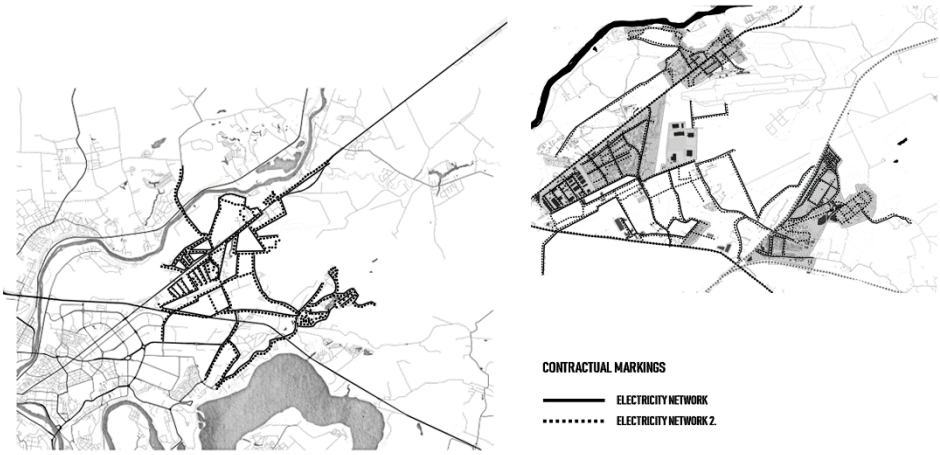

Fig. 47. Infrastructure of engineering networks. (Džiaugys, 2023)

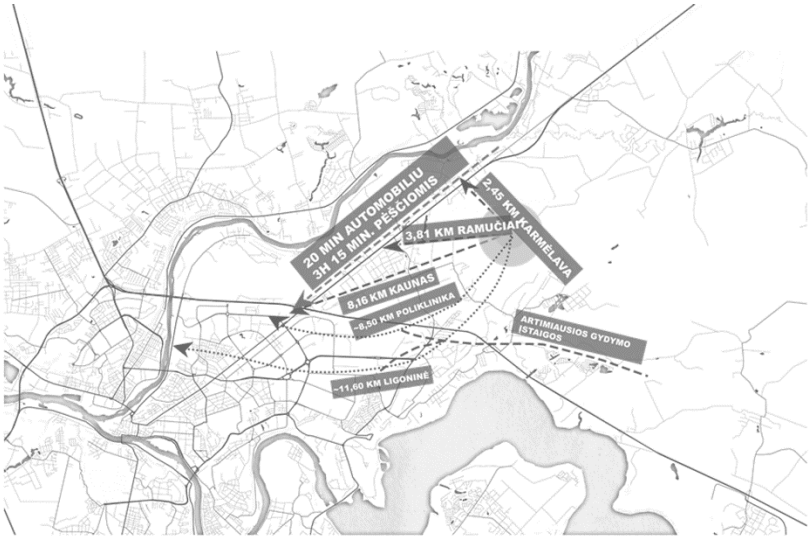

Fig. 51. Distances to nearest critical infrastructure. (Džiaugys, 2023)

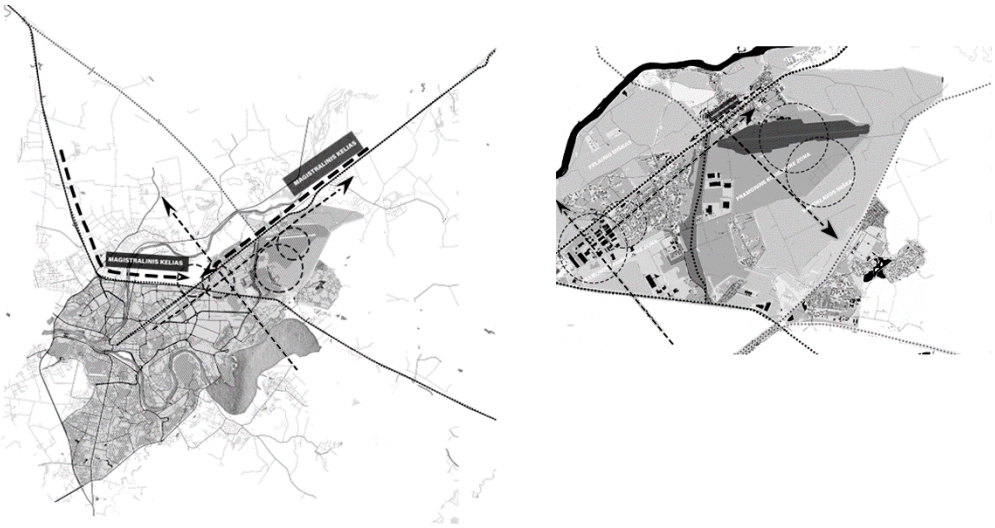

Fig. 50. Functional zoning of surrounding areas, land use. (Džiaugys, 2023)

Once all the main influencing elements and factors have been identified and analysed, the necessary infrastructure that should exist in a functional military base has been taken into account (For results see **appendice x**):

1. Command and control center;
2. Maintenance and repair facilities;
3. Fuel and ammunition storage;
4. Training and testing areas for tanks;
5. Barracks and temporary living quarters;
6. Medical facilities;
7. Vehicle parking and storage;
8. Communictaion infrastructure;
9. Security and communications (air defence systems, on ground defence systems hq);
10. Training grounds;
11. Logistics and supply chain;
12. Tank maintenance and storage.

Considered architectural and urban design features of the alternative:

1. The road network of the former military base of Karmelava is maintained.
2. Maintain and upgrade the road network leading to and from the site.
3. Given the nearby train tracks, a new track to the site shall be designed to be used to transport tanks to and from the military base.
4. A linear design is chosen, with the balaton headquarters located in the centre and other military operational facilities designed around it.
5. Functional layout to be considered for fast and efficient site functionality.

Despite its ambition and boldness, a number of fundamental flaws in the final analysis rendered the first alternative unusable for the development of the site and prevented the development of potential solutions. The lack of in-depth research and analysis was one of the reasons that prevented the alternative from forming a solid and well-reasoned foundation based on the results of empirical research. These shortcomings led to a failure to properly examine and analyse the most important aspects of the site, to disregard the functionality indicators and to overlook the essential foundations for the adaptation of infrastructure. It is important to note that the assessment of the suitability of the alternative is almost 100% based on its compliance with the objectives and the results of the studies, and therefore this alternative could not be further developed.

Alternative 2. It not only changed the direction of the development, but also added additional theoretical and factual research material and results, and analysed in more detail all the potential infrastructure bottlenecks during the development, as well as providing a different approach to the development of the area itself.

This bold change of direction is not only due to the application of the relevant results, but also to the shortcomings of the first alternative, which not only hindered the implementation and embodiment of the project's research results, but also fundamentally changed the project's concept and direction, and therefore a more flexible development path, more in line with the facilities and infrastructure closer to the site, was chosen, which resulted in the selection of a functional development of the site, namely the expansion of the air defence unit. This part also included additional focus on the analysis and information gathering of air defence systems, as well as how and on what principles defence systems operate and how they could be integrated into the site and its development. All possible air defence systems that could be applied specifically to the development of the former military base in Karmelava were considered, including THAAD and Patriot air defence systems, as well as the infrastructural requirements for the successful operation of air defence systems. (See **Appendix 5** for additional results)

The additional study identified the main functional areas, design direction and development options. In order to expand the possibilities of this alternative, the modular architecture principle was also chosen, which not only allows for rapid redevelopment and expansion of the site, but also has the potential for scalability. The design principles of the alternative allow the entire infrastructure of the site to be removed and relocated to another site if necessary.

As in the alternative described above (**Alternative 1**), the linear design principle is retained, with the main functional areas being designed together, and with the main lines of paths and roads

connecting the most important points of the military base - accommodation, the medical facilities, the training fields, the main square and the army headquarters.

The need to keep the air defence systems in combat readiness at all times also played a major role in the development of the alternative, so the layout of the site was not only shaped around the road network, but also transformed on the basis of the guidelines for the optimal location of air defence systems.

The integration of the military infrastructure planned for the area:

1. Entrance to the territory – control posts.
2. Main car parking.
3. First headquarter building.
4. Second main headquarter building.
5. I waherhouse block for machinery.
6. Medical facilities;
7. Accommodation barracks.
8. Helicopter pads for 4 attack helicopters.
9. Security and communications.
10. Training grounds.
11. II and III warehouse blocks for machinery, fuel, equipment, tools.
12. Logistics and supply chain;
13. Plane maintenance and storage.
14. II accommodation barracks block.

Fig. 52. Site plan of the proposed alternative 2. (Džiaugys, 2023)

Although Alternative 2 offers the possibility to extend the existing structure of the site and to reuse the disused former military base in Karmelava, in the same way as Alternative 1, it had its own difficulties and shortcomings which affected the direct applicability and feasibility of the alternative. The analysis identified issues such as the relocation and adaptation of the structural plan to the existing scale of the site, integration with nearby critical infrastructure, coordination of the various functions, and the application and implementation of the results of the main studies in development. It is important to note that it was for these reasons that the second alternative could not be

implemented and properly developed, and therefore a third and final alternative for the site was developed, which sought to incorporate all the ideas and results of the studies, while providing clear guidelines for development, not only to establish the principles of military architecture, but also to provide guidelines for architectural design in order to target a holistic approach to development of the site. (See **Appendix 5** for additional results)

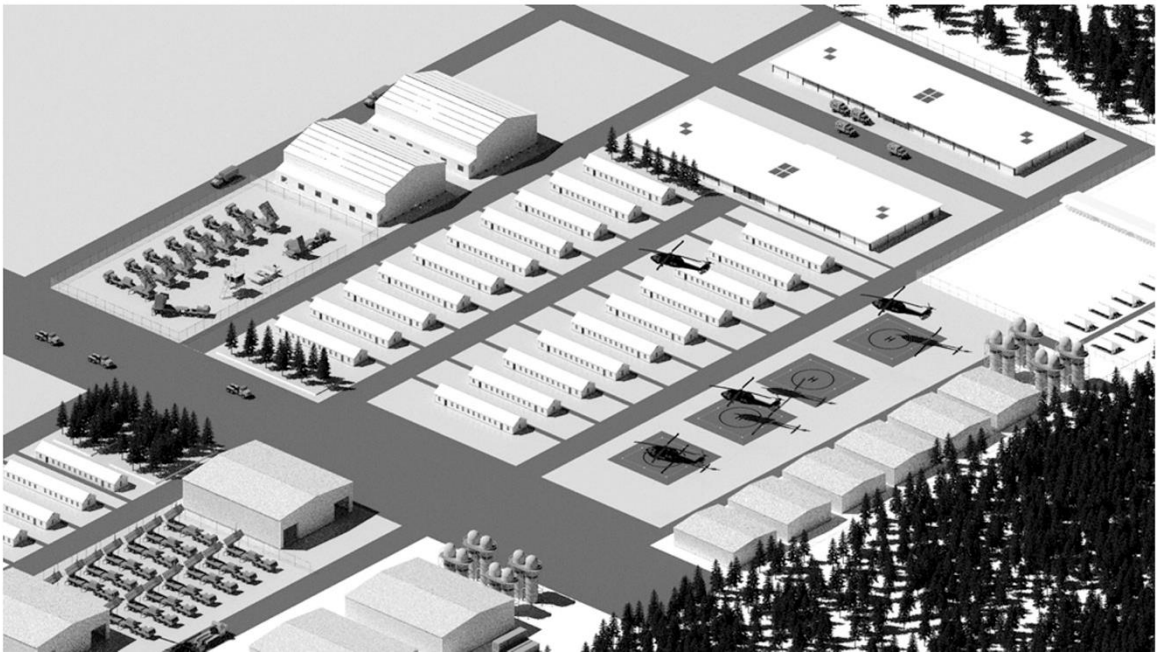

Fig. 53. Full view of military complex. (Džiaugys, 2023)

4.4. Detailed design of the new complex on the site of the former Karmėlava military base

The former military base in Karmėlava is not only a strategic location but also has a significant size, and on the basis of the material and results of the study and the alternatives presented, it was decided to change the direction of the development and to focus on the development of the main building as a functional point, i.e. This development system was chosen on the basis of the situational analysis and the size of the site, as well as the additional studies and analyses carried out (See **Appendix 6** for additional results), and taking into account the existing infrastructure, which led to the choice of this development path.

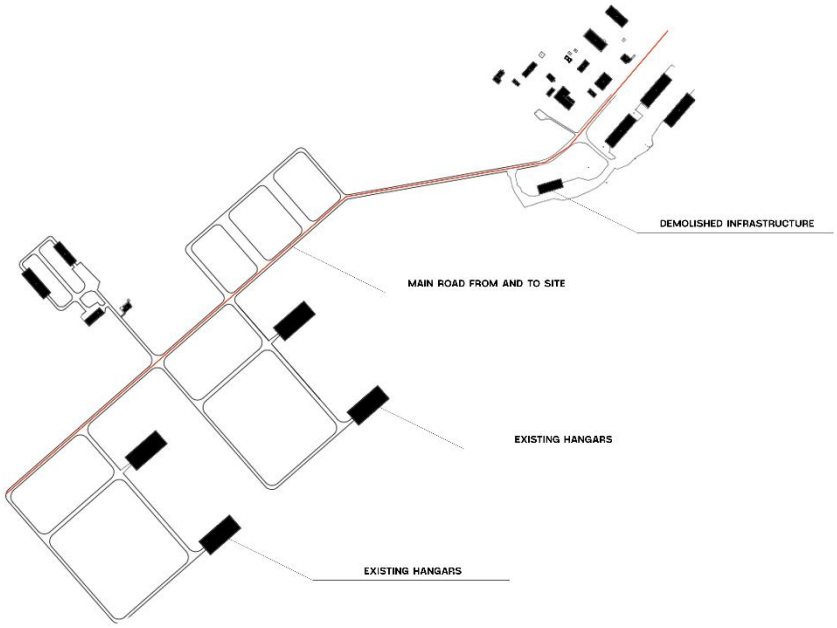

Fig. 54. Situation analysis. (Džiaugys, 2024)

In order to further clarify and target the use of the existing infrastructure on the site, a further situation analysis of the site has been carried out, identifying the remaining structures which have not yet been demolished. It was found that four hangars, which were used for the storage of missiles, are still extant at present. It is important to note that they are strategically located and their size can easily be used in an attempt to successfully develop the area. Taking into account the success of the proposed alternatives and the size of the site, it was decided to proceed with the development of a single architectural structure, which would serve as a focal and central point of the site. It is important to note that the hangars identified during the situational analysis were used to preserve the existing infrastructure by giving them a new function and use.

As the insights and results of the research to date have not been put to good use, it has been decided to opt for a partial use of the results by going back to the research described in Part 3 and using the results to guide the direction of the research.

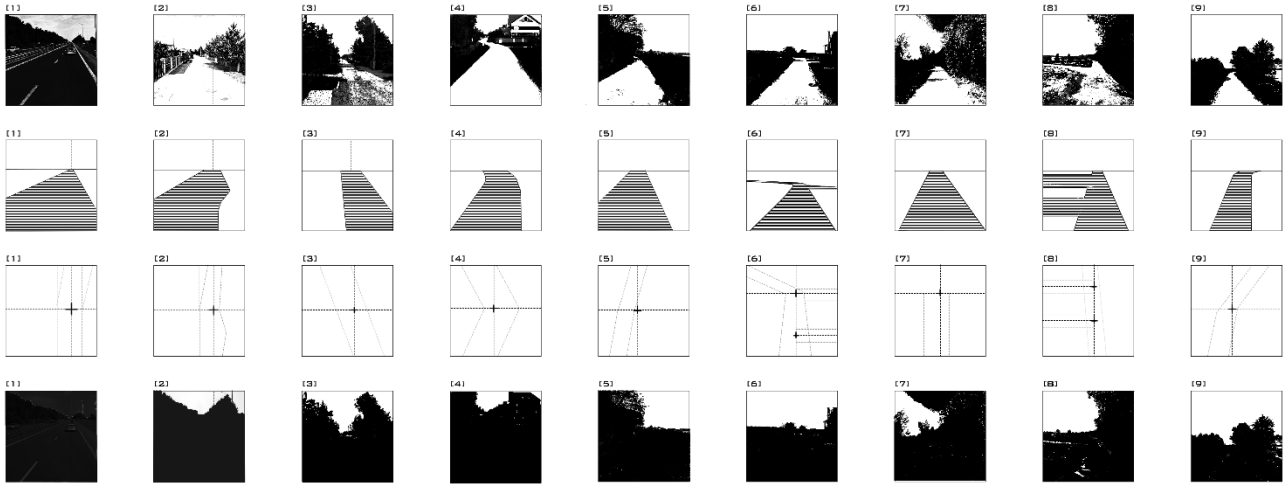

Fig. 56. Simplification of line movements through Point of view. (Džiaugys, 2023)

In the third study on shape manipulation and line deconstruction, various techniques and solutions were described to discover new design approaches and directions, however, it was chosen (See Fig. 27) and decided to base the design on the results of a specific phase of the study. Nine road sections leading into the site were selected for the study, and the projections of the roads were mapped onto a plan view, from which the resulting plan views were manipulated by transforming the projections into shapes, resulting in the generation of different shapes that have no analogues (in this study). However, in the last part of the study, it was decided to choose and use the emotional factors identified in the theoretical and empirical parts of the research that influence the human state and the general perception to further substantiate this projection phase. The nine selected sections were brought back to the original silhouette images, which were used to select the shapes and contours in the silhouette. (See **fig. 55**) During the design process it was assumed that the silhouettes have a corresponding emotion that can be transferred to the development of the area.

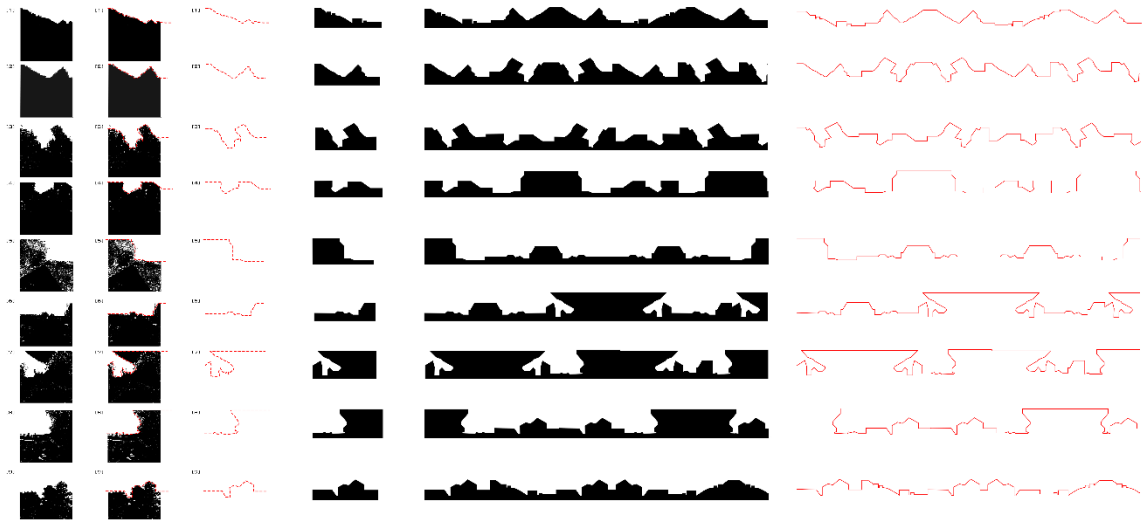

Fig. 55. Silhouette transformation. (Džiaugys, 2024)

Fig. 58. Road sections that formed landscape and views. (Džiaugys, 2024)

Also, once the silhouettes and their contours were brought out, projections of the road sections were taken and used as a tool to shape the images of the territory, which means that every turn in the territory has to be different, and that every movement can radically change the direction of travel and the time, the feeling, and that the different materiality of the buildings and the structure of the roads has to give a different feeling to the differrent sensations the territory gives.

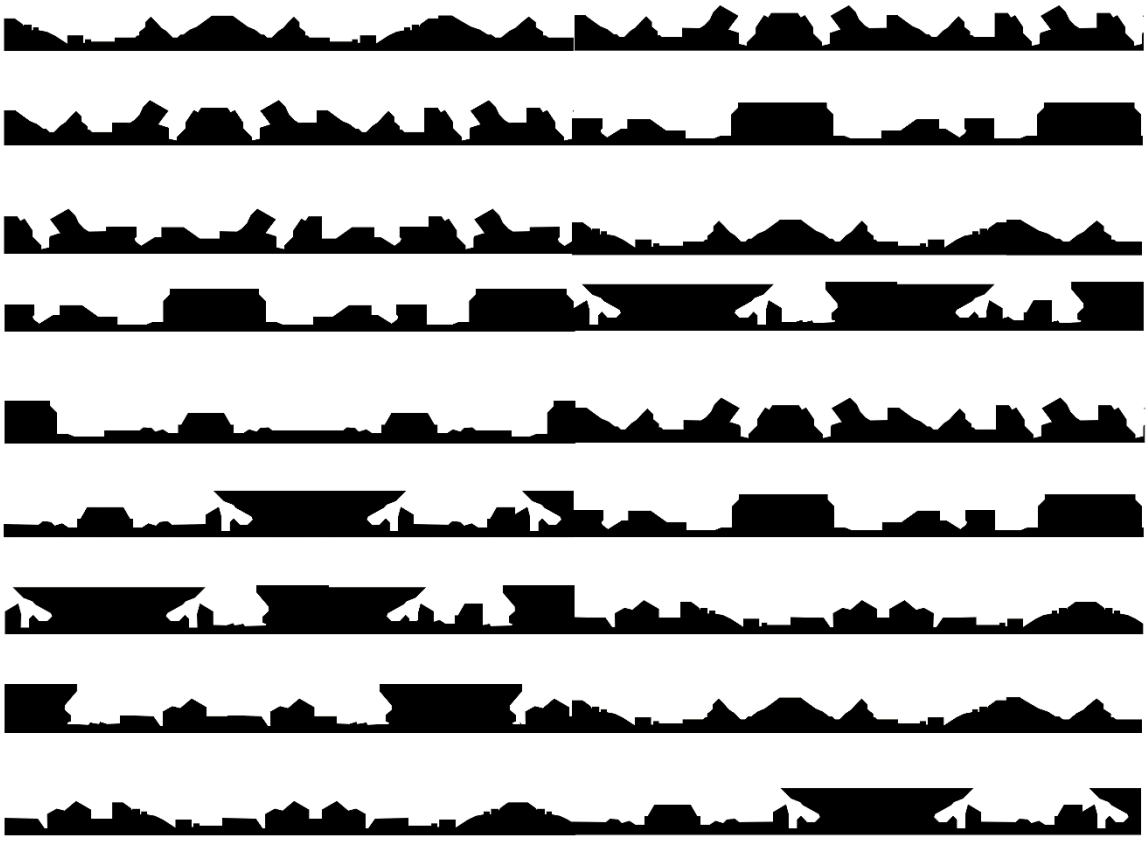

Fig. 57. Generation of silhouettes of possible layouts for the area. (Džiaugys, 2024)

Through this short additional study and the use of previous results, a framework was developed that enabled the development of the former military base site in Karmelava. One of the main tools for shaping the architectural language was the use of the existing infrastructure - hangars, which, due to their arched shape and position, were used as passageways for the users of the site, and on top of which a new multi-purpose military training and education centre was planned.

The main functional areas and their use according to the floors of the building are distinguished:

1. **The ground floor is a public space** - canteens, exhibition halls, a museum, libraries, lounges and other publicly accessible facilities for visitors and students.

2. **The second floor** - dedicated exclusively to the development of learning, assembly and academic activities, while the left flank of the building is intended for sports and other active uses.

3. **The third floor** - the working floor for military personnel, for offices, meeting rooms and other work-related spaces.

4. **The main public square** - formed in the eastern part of the building, while the western part is intended for the development of the car park.

Based on this development model, it was assumed that the formation of a single and main building would make the adaptation of the other functional areas to the site much easier

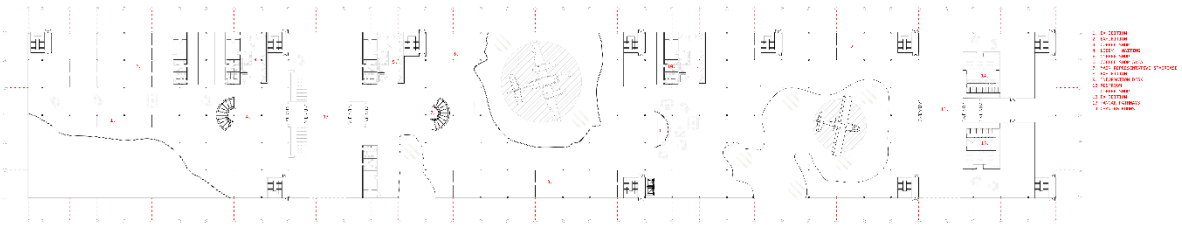

Fig. 59. Ground floor plan with context. (Džiaugys, 2024)

The idea of full transparency and transitivity is applied, using the existing infrastructure to create additional directions for walking and moving in and out of the building, and the three-storey all-glass building not only allows sunlight to enter, but also opens up views of extraordinary beauty, connecting the people inside with nature. The ground floor also opens up a huge space to the second and third floors, while the uneven shapes and dynamic opening of the ceiling give the right emotion. Due to the unusually long length, symmetry is avoided, due to the possible misunderstanding of the building or the loss of the essence of the building itself, and although the ground floor has a clear and logical arrangement of the rooms, the corresponding details and architectural elements do not allow the person to feel strictly constrained in the room.

The second and third floors are designed identically, but with different functions, as mentioned above the second floor is intended for education and the third for work purposes, so on the second and third floors double-height rooms are introduced and integrated, rising from the second floor to the third

floor, thus creating an additional sense of space in a more confined space. Also on the second floor, a full-size gym for working, studying and other users is integrated.

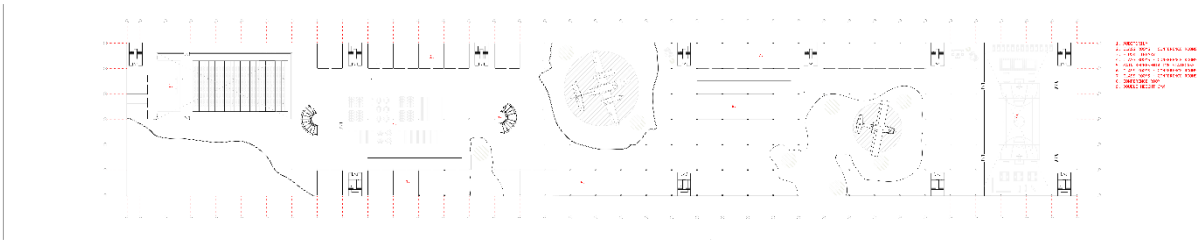

Fig. 60. Second floor plan. (Džiaugys, 2024)

Second floor room layout - total square metres – 15000.

1. Auditorium for 300 + people. 2. Class rooms – conference rooms. 3. Floor library. 4. Class rooms – conference rooms. 5. Main representative staircase. 6. Class rooms – conference rooms. 7. Class rooms – conference rooms. 8. Conference room. 9. Double height gym.

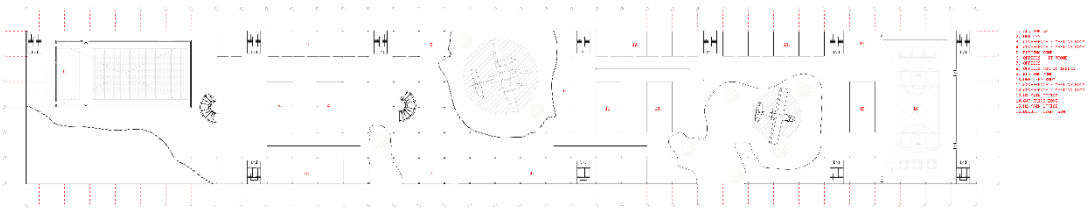

Fig. 61. Third floor plan. (Džiaugys, 2024)

Third floor room layout – total square metres – 15000.

1. Auditorium for 300 + people. 2. Offices. 3. Conference – meeting room. 4. Conference – meeting room. 5. Resting zone. 6. Offices – IT rooms. 7. Offices. 8. Offices for Officers. 9. Resting zone. 10. Officers room. 11. Conference – meeting room. 12. Conference – meeting room. 13. HQ main office. 14. Gathering zone. 15. HQ main office. 16. Double height gym.

The plans are based on easy but purposeful movement through the rooms, a clear layout of upward travel paths, thanks to the windows around the building, the user is always inside the building as if he or she were outside, thus creating a feeling of being inside and outside. (For better size floor plans see **appendix 6**)

Fig. 63. South Façade of a complex. (Džiaugys, 2024)

The facades of the building are static and have been designed to give the impression of order and purposefulness. To reduce the heat generated by sunlight, horizontal partitions are used, spaced at equal distances, so that when the sun changes direction during the day, a shadow is created, but the light is still let in. In addition, through the use of shape transformation and silhouetting, the details of the façade are shaped in such a way that fragments of the corresponding images and landscape silhouettes are directly reflected in the façade and can be found.

Fig. 62. North Façade of a complex. (Džiaugys, 2024)

The northern façade reflects symmetry, one of the elements of positive and appreciated architecture identified in the results. The east and west façades are characterised by symmetry, but as a result of the design practices applied during the study, the façades are enveloped by a silhouette-based cladding that not only envelops the main structure of the building, while at the same time forming the corresponding views, but also the two main hangars. (For Façades see **appendix 6**).

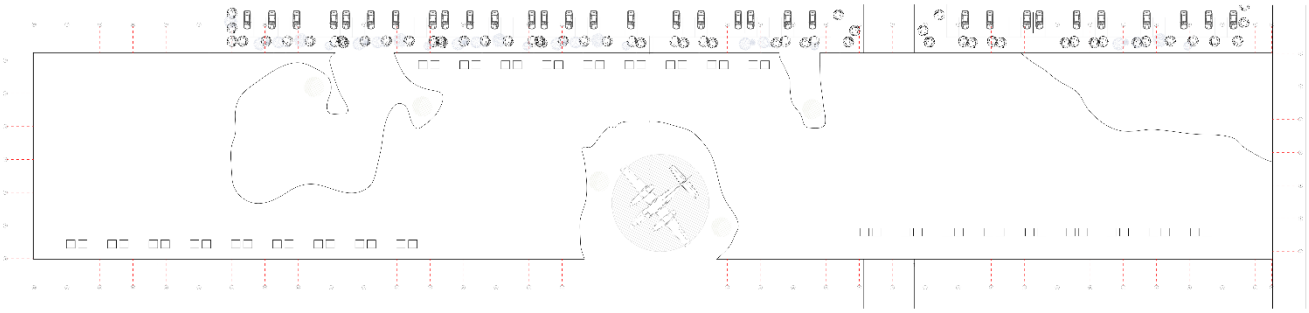

Fig. 65. Roof plan. (Džiaugys, 2024)

Fig. 64 shows the roof plan in context, showing that the two main external functional zones are clearly defined and the roof composition indicates the direction of the roads, the plaza in front of the building is used for raising flags and for the soldiers and staff to carry out their routine tasks, marching, the car park at the eastern end of the building is both a park and a plaza, and it is completely closed off by the vegetation and the trees, which creates a contrast between the functional zones and the building architecture, also openings and cutouts in building create additional zones for recreation and observation while being outside and inside the building. Thanks to additional openings on roof extra amount of sunlight can get it to light up third floor. (For additional **drawings and plans see appendix 6**).

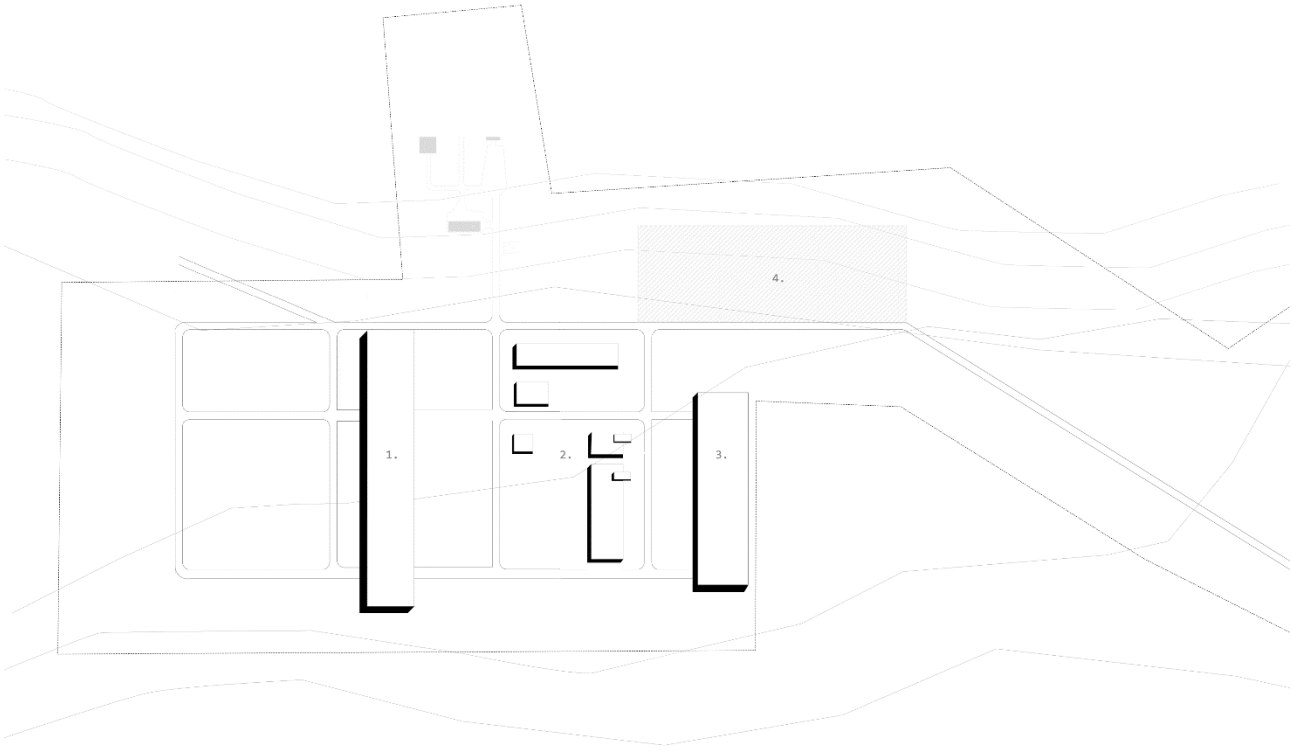

Fig. 64. Site plan. (Džiaugys, 2024)

In Fig. 65 main parts and complexes are shown – 1. Main building and main areas plaza, car park. 2. Accomodation and recreation complex. 3. Equipment and technical area. 4. Area that is not being used in the development process. Fig. 66 presents it in pattern scheme in the same order.

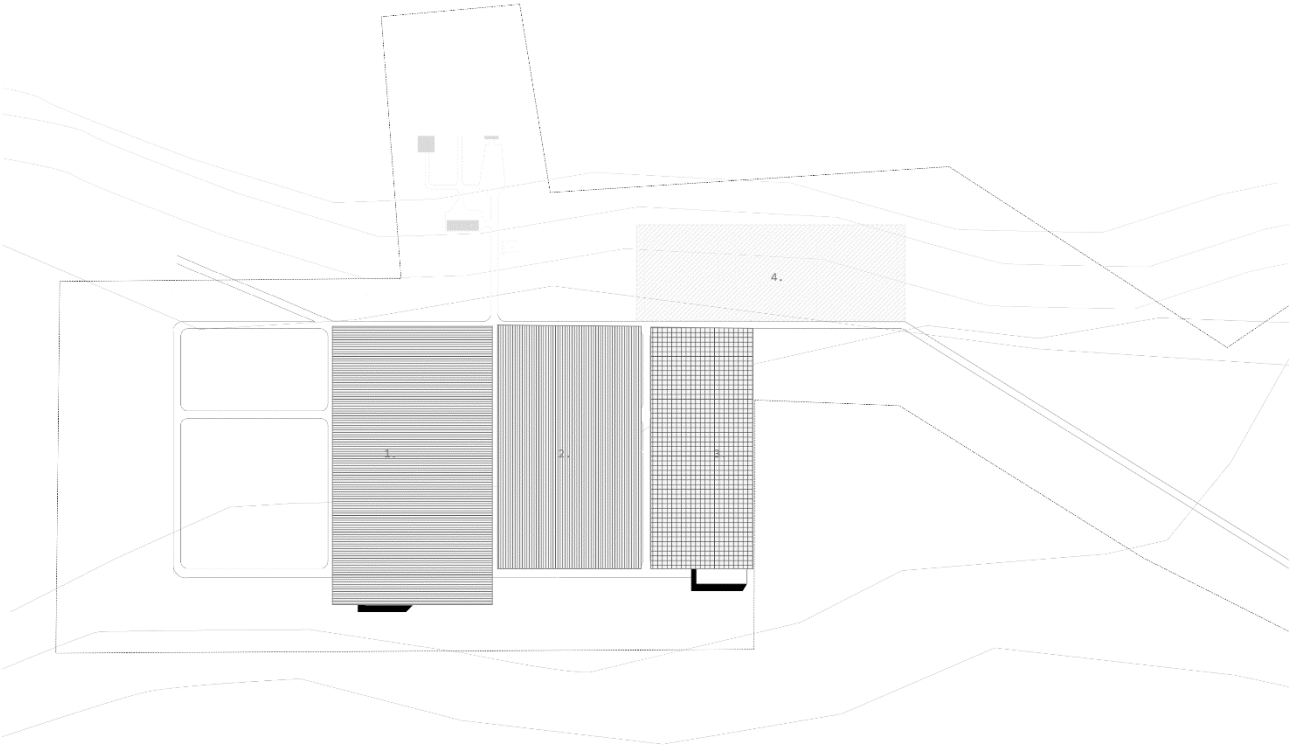

Fig. 66. Site plan pattern mapping. (Džiaugys, 2024)

However, although both architecture and design were oriented towards a successful and targeted development of the area, which was directly oriented towards the user, it was not possible to achieve the intended results due to the misapplication of the results of the theoretical material and its contradiction with the practical part.

4.5. Evaluation of the results of the experimental project and guidelines for future projects.

The experimental project did not live up to expectations, one of the reasons for this being the excessive number of results obtained during the study, which in turn made it difficult to develop the project correctly. Also, the study was expected to try to answer, at least partially, the metaphysical questions and problems raised, and to give more expression to the language of architecture not through the elements, but through the user's direct relationship with the building, but a large part of the results have not been applied for the reason mentioned above, and the wrong direction of the development has been chosen, without considering the main goals of the study. In terms of architectural expression, the experimental design included what the study identified as visually unpleasant elements, excessive symmetry, etc., which meant that the project could not meet all the objectives set out.

However, even though the experimental design did not work as expected, the large amount of different research carried out not only gave great insights and information about the user and their relationship with society, but also gave us an insight into how architecture can influence our everyday choices or freedoms, and how at the same time it can be an illusion of something that we imagine.

In summary of the research project, the following guidelines for the development of the former military base in Karmėlava and similar areas are identified and proposed as recommendations:

1. Targeted consideration of the areas and sizes of the site and targeted functional orientations. The experimental design concluded that too large areas may not be suitable for development, and therefore suggests targeted development and functional zoning.
2. The wishes and expectations of the public and the user are taken into account.
3. Sociological and other necessary studies are required before development can take place in order to identify and understand people's interactions, emotional indicators, goals and aspirations, as well as to assess the architectural elements and strategies of the planned development, if necessary.
4. Conduct a thorough theoretical analysis and apply appropriate theoretical guidelines to guide the entire development process.
5. Avoid overlapping functional zones or excessive buildings which may in turn occupy an area of the site without contributing to the creation of an overall better existence.
6. Take into account opportunities to involve members of the public, or as many members of the public as possible, in the development and creative process, and to provide opportunities for people living nearby and possibly using the site to submit ideas.
7. Avoid excessive architectural elements or ideas such as symmetry, replication of forms and functions in facades, plans, etc.
8. Depending on the function of the site, to provide places for the public to engage in the building or development process, to allow for targeted and unrestricted provision of places where users can create the zones they need.
9. Preserving and respecting existing infrastructure (if any) can be a guarantee for ensuring a fundamental architectural language.
10. In the development process, it is important to ensure the design of green spaces at a human scale, incorporating both sustainable materials and ergonomic design principles.
11. Assessing the significance of each future building and functional object in the context of the site, assessing its necessity and operability, as well as assessing the validity of all the phases of the design framework.

Conclusions

1. The literature analysis showed that although all primary and secondary functions, communications and systems, military functions and necessary infrastructure were identified, ***the feasibility study for the development of the former Karmėlava military base did not yield unequivocal results***. Despite the initial projections indicating the potential adaptability of the site to various activities, the large size of the site has become one of the major obstacles to the development of the area, and the lack of strategic infrastructure in the vicinity has not allowed for freedom of choice, which has been one of the reasons for the less than fully successful development. In addition, some of the theoretical research results: applicability of theoretical ideas, applicability of phenomenological aspects in the development process ***proved to be only partially possible***, while some of the remaining results ***were either not directly applicable or only partially related to the unique circumstances of the area*.**

2. The results of the theoretical and literature analyses and studies led to the formulation of a hypothetical model, the applicability of which to the development of the territory was based on a full theoretical foundation. The hypothetical model was found to be in line with the results predicted by the literature analysis, however, it is important to note that ***the hypothetical model did not work in the practical application phase***, one of the reasons for this was the lack of practical research to see if the model could work in the development process. It is also important to note that even if the hypothetical model was fully dependent on the correct and positive design guidelines and decisions highlighted in the research results, its validity and applicability were not 100% confirmed.

3. The empirical research identified all possible directions and solutions for positive architectural design (see results in **chapter 2**), which were then used to determine the validity of the hypothetical model. As mentioned in the second conclusion, the empirical studies and their results only reaffirmed the fact that the design guidelines identified in the theoretical and literature analysis cannot be applied in the process, due to the differences between the theoretical and the practical part and/or the lack of practical feasibility studies to justify the applicability of the hypothetical model. Based on the results of the studies, it was found that the majority of the elements - 60% - identified in the hypothetical model cannot be considered valid and used in the development process due to the gaps in the studies and the lack of applicability analyses of the ideological solutions.

4. The sociological survey carried out have revealed and identified all the potential successful development areas and potential usable elements that have a positive impact on people's appreciation of architecture and their overall sense of well-being. In addition, the empirical research carried out by the focus group study has further confirmed the problems highlighted by the sociological survey, answering the main questions raised in the sociological survey about the residents' appreciation of architecture, as well as the key elements that have a direct impact on their well-being. It identified the need to improve the promotion of positive and human-centred architecture, green spaces, accessibility and connectivity to the surrounding areas. However, it is important to note that even though a large number of positive elements were identified and potential development areas were identified, negative elements, non-positive development areas, etc. were also identified. The results of the sociological survey and the focus group summaries

show that even in the presence of architectural positivism and a positive development orientation, the failure to take into account negative elements may mean that the application of the results in the development phase is not successful.

5. The targeted sociological and focus group research, which targeted the right audiences, provided a strong basis and results that led to the development of a conceptual model for the development of the former military base of Karmėlava. It is important to mention that the structure of the conceptual model was derived from the hypothetical model and the remaining validated statements, therefore the conceptual model was not only based on the empirical research material, but also on the guidelines and results of two different studies. It is important to note that the weaknesses of the conceptual model were identified in the development of the development alternatives, as a result of the gaps between empirical and theoretical research in the previous stages. This was one of the reasons ***why the use of the conceptual model in practical design could not be 100% validated as working*.**

6. The gaps identified in the research were to be filled or closed by additional field/artistic research that addressed the problems in the conceptual and hypothetical models. It is important to mention that the study was focused on the development of a new framework that could possibly lead to the most correct and adaptable design model to be applied in the development process. The aim was to identify all the recurring architectural elements, line movements, possibilities of shape manipulation and applications, as well as to use and exploit types of parametric design and analysis. The study found that shaping the environment and adapting and manipulating existing and leading emotional and architectural solutions can achieve positive outcomes that can purposefully change the direction and success of a development.

7. During the experimental design process, parts of the results of the whole study and their main aspects were applied, which helped to steer the development of the area in the right direction, but it was found that the large number of different results and possible design directions made it difficult to apply the results of all the different parts of the study in the process, and that this meant that some of the results of the experimental design process were not valid and no longer applicable. It is also important to note that even when all the results were verified in the experimental design, only some of them were applicable and usable in the development process, which is a direct result of the shortcomings of the hypothetical and conceptual models. ***Therefore, the experimental design and its results were found to be only partially valid or not applicable at all. Therefore, the experimental design is not considered to be a complete success*.**

8. Due to the inconsistencies found in the experimental design, the design guidelines were developed based on a successful hypothetical model and situation, but due to the amount of research and the variation and abundance of the results obtained, it was difficult to determine the target direction and its success in applying the developed design guidelines in another area or situation. Therefore, the ***Design Guidelines are only partially valid***, and further analyses of the results of the study may be required to achieve a successful design, which have the greatest impact on the Design Guidelines and their suitability for different areas or situations. ***Based on the success of the experimental design, it was decided to read the design guidelines as only partially valid and applicable*.**

9. Based on all the studies and the results obtained, it was found that hypotheses 3, 4, 5 are only partially supported or the results applied in the experimental design were not sufficiently valid to form a correct opinion and to validate the hypotheses, and that hypotheses 1 and 2 could not be confirmed due to the inadequate systematisation of the results of the studies and the misapplication of them to the design. However, it is important to note that the hypotheses were derived from the results of the theoretical analysis, which only theoretically identified predictable and possible outcomes, and that human tractability and metaphysical phenomena make it difficult to apply and identify influencing factors that could be appropriate for all groups of people. (For the hypotheses, see **Table 1**).

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Appendices

Appendix 1. A structured survey in Lithuanian language.

Sveiki,
Esu Arnas Džiaugys, Kauno Technologijos Universiteto, Architektūros magistrantūros programos 1-ojo kurso studentas ir šiuo metu atlieku tyrimą, kurio tikslas yra ištirti architektūros ir vartotojo santykį, daugiausia dėmesio skiriant konkrečių norų, pageidavimų ir galimos įtakos kasdieniams pasirinkimams nustatymui. Tyrimu siekiama pateikti įžvalgų apie architektūros vaidmenį formuojant naudotojų suvokimą ir elgseną bei nustatyti gaires projektavimo aspektams.
Šio tyrimo rezultatai suteiks vertingų įžvalgų ir krypčių mano baigiamajam magistrantūros darbui. Dėkoju už dalyvavimą šiame tyrime.

1. **Kokia Jūsų amžiaus grupė?**

a) 0-12
b) 13-17
c) 18-25
d) 26-40
e) 41-65
f) 65+

2. **Kokia jūsų lytis?**

a) Vyras
b) Moteris
c) Nenoriu atsakyti Kita:

3. **Koks jūsų išsilavinimas?**

a) Pradinis
b) Vidurinis
c) Profesinis
d) Aukštasis (neuniversitetinis, kolegija) - bakalauras
e) Aukštasis (universitetinis) - bakalauras
f) Aukštasis (universitetinis) - magistras
g) Aukštasis (universitetinis) - mokslų daktaras Kita:

4. **Nuo 1 - 10 įvertinkite architektūros svarbą jums.**
Kai, 1 - Jums ar jūsų kasdieniam gyvenimui architektūra ir sprendimai nedaro įtakos, 10 - Architektūra yra labai svarbi jums ir turi didelę svarbą jūsų kasdieniniame gyvenime.

1. **Kiek jums svarbi pastatų ir erdvių išvaizda?**

a) Labai svarbu
b) Šiek tiek svarbu

c) Neturiu nuomonės
d) Nelabai svarbu
e) Visiškai nesvarbu

6. **Kiek jums svarbus pastatų ir erdvių funkcionalumas?**

a) Labai svarbus
b) Šiek tiek svarbus
c) Neturiu nuomonės
d) Nelabai svarbus
e) Visiškai nesvarbus

7. **Ar turite jums patinkantį architektūrinį stilių? * Pavyzdžiui - Tradicinis, modernistinis, šiuolaikinis ir t.t.**

8. **Ar dažnai susimąstote apie architektūrą ir jos svarbą jūsų kasdieniniame gyvenime?**

a) Dažnai susimąstau
b) Kartais susimąstau
c) Nesusimąstau
d) Kita:

9. **Kaip manote, ar pastatuose pirmenybė turėtų būti teikiama estetiniam dizainui, ar praktiškumui?**

a) Pirmenybė turėtų būti teikiama esteniniam dizainui
b) Pirmenybė turėtų būti teikiama praktiškumui
c) Abejais atvejais turėtų būti išlaikoma vienoda arba abipusė svarba.
d) Kita:

10. **Pabandykite trumpai atsakyti, kaip pastato architektūra veikia jūsų emocijas, ar bendrąją patirtį naudojantis pastatų erdvėmis?**

11. **Ar galėtumėte sutikti su teiginiu, jog - "Architektūra gali turėti įtakos emocinei žmogaus sveikatai ir gerovei "?** Jeigu nesutinkate arba sutinkate prašau pabandykite įvardinti kodėl. Visi atsakymų variantai yra teisingi ir priimtini.
Jūsų atsakymas:

12. **Kiek jums svarbus yra saugumo jausmas viešosiose erdvėse?**

a) Labai svarbus
b) Šiek tiek svarbus
c) Neturiu nuomonės
d) Nelabai svarbus
e) Nesvarbus
f) Kita:

13. **Kiek jums yra svarbu, kad pastatuose ir viešosiose erdvėse būtų natūralių elementų (vandens telkinių, augalų ir kt.)?**

a) Labai svarbu
b) Šiek tiek svarbu
c) Neturiu nuomonės
d) Nelabai svarbu
e) Nesvarbu
f) Kita:

14. **Ar manote, kad pastatai ir erdvės turėtų atspindėti bendruomenės kultūrinį identitetą ir istoriją?**

a) Taip
b) Ne
c) Kita:

15. **Kiek jums yra svarbi galimybė pėsčiomis ar dviračiu pasiekti viešąsias ar privačias erdves?**

a) Labai svarbi
b) Svarbi
c) Neturiu nuomonės
d) Nelabai svarbi
e) Nesvarbi

16. **Kiek jums svarbus yra viešojo transporto prieinamumas?**

a) Labai svarbus
b) Šiek tiek svarbus
c) Neturiu nuomonės
d) Nelabai svarbus
e) Nesvarbus
f) Kita:

17. **Ar galite apibūdinti pastatą, kuris, jūsų nuomone, yra ypač gerai suprojektuotas? Kuo jis jums atrodo išskirtinis?**

Jūsų atsakymas:

18. **Ar kada nors pasirinkote gyvenamąją ar darbo vietą pagal pastato dizainą ir kodėl?**

Jūsų atsakymas:

19. **Kaip manote, ar pastato dizainas ir išplanavimas gali turėti įtakos jūsų nuotaikai, emocijoms ar bendrai savijautai? Jei taip, kaip?**

Jūsų atsakymas:

20. **Kiek jums yra svarbi natūrali šviesa pastate?**

a) Labai svarbi
b) Svarbi
c) Neturiu nuomonės
d) Nelabai svarbi
e) Nesvarbi
f) Kita:

21. **Ar manote, kad pastatuose ir erdvėse pirmenybė turėtų būti teikiama energijos vartojimo efektyvumui ir taupymui?**

a) Taip, visiškai sutinku
b) Taip, iš dalies sutinku
c) Neturiu nuomonės
d) Ne, šiek tiek nesutinku
e) Ne, visiškai nesutinku
f) Kita:

22. **Kiek supanti aplinka (pvz., miesto panorama, gamta ir pan.) turi įtakos jūsų asmeniniam architektūros vertinimui?**

a) Labai daug
b) Šiek tiek
c) Nelabai daug

d) Visiškai ne
e) Kita:

23. **Kokios dizaino savybės architektūroje jums atrodo vizualiai patrauklios?**
Pavyzdžiui - Pastato simetrija ir pusiausvyra, vienodos proporcijos abiejose centrinės ašies pusėse.

Jūsų atsakymas:

24. **Kokios dizaino savybės architektūroje jums atrodo vizualiai nepatrauklios?**
Pavyzdžiui - Susikertančios spalvos, pernelyg perkrautas dizainas, per daug arba per mažai natūralios šviesos.

Jūsų atsakymas:

25. **Kiek jums svarbus pastato tvarumas ir energijos vartojimo efektyvumas?**

a) Labai svarbus
b) Svarbus
c) Neturiu nuomonės
d) Nelabai svarbus
e) Nesvarbus
f) Kita:

26. **Kaip vertinant nuo 1 iki 10, kokią įtaką pastato išorinė išvaizda turi jūsų požiūriui į jį?* Kai 1 - Neturi įtakos, 10 - turi didžiulę įtaką.**

27. **Pabandykite atsakyti, kaip manote, kiek jūsų emocijos, prisiminimai ir asmeninė patirtis daro įtaką jūsų architektūros suvokimui? Kaip, jūsų manymu, fenomenologiniai aspektai, tokie kaip jutiminiai suvokimai ir subjektyvi patirtis, formuoja jūsų architektūros supratimą ir jos vertinimą?**

Jūsų atsakymas:

Appendix 2. A structured survey in English language.

Hello, my name is Arnas Džiaugys, I am an architecture master's student at Kaunas University of Technology, and I am doing research to evaluate user preferences in architecture.

Research Purpose: The study aims to investigate the relationship between architecture and the user, with a focus on identifying specific desires, preferences, and potential influences on everyday choices. The research seeks to provide insights into the role of architecture in shaping user perceptions and behaviors and to establish guidelines for design considerations.

Research goals: Through this study, I seek to gain a comprehensive understanding of the perceptions and perspectives of users towards architecture, including their specific desires and preferences related to building design and functionality. The findings of this research will provide valuable insights and guidelines for my final master's thesis.

Thank you for your participation in this research study.

1. **What is your highest level of education completed?**

a) High school or equivalent
b) Bachelor's degree
c) Master's degree
d) Doctoral degree
e) Other:

2. **What is your age range?**

a) 15 - 18
b) 18 - 24
c) 25 - 34
d) 35 - 44
e) 45 - 54
f) 55 - 64
g) 65 - 74
h) 75 - 84
i) +85
j) Other:

3. **What is your gender?**

a) Male
b) Female
c) Prefer not to say

d) Other:

4. **How important is the appearance of buildings and spaces to you?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

5. **How important is the functionality of buildings and spaces to you?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

6. **Do you prefer traditional or modern architectural styles?**

a) Traditional
b) Modern
c) No preference
d) Other:

7. **Do you think buildings should prioritize aesthetic design or practicality?**

a) Aesthetic design
b) Practicality
c) Both equally
d) Other:

8. **Please, try to briefly answer, how does the architecture of a building influence your emotions or overall experience when you interact with it?**

Your answer:

9. **How important is the use of sustainable materials and practices in buildings?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

10. **Do you think green spaces (parks, gardens, etc.) are important for cities?**

a) Yes, very important
b) Yes, somewhat important
c) No, not very important
d) No, not at all important
e) Other:

11. **Do you think that buildings and spaces can have an impact on your mental health and well-being?**

a) Yes, strongly agree
b) Yes, somewhat agree
c) My opinion is neutral
d) No, somewhat disagree
e) No, strongly disagree
f) I don't know
g) Other:

12. **Do you think that the design and layout of a building can influence your mood, emotions, or overall well-being? If so, how?**

Your answer:

13. **How important is the feeling of safety and security in public spaces?**

a) Very important
b) Somewhat important
c) My opinion is neutral
d) Not very important
e) Not at all important

f) Other:

14. **How important is the availability of amenities (grocery stores, restaurants, etc.) in your community?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

15. **How important is the presence of natural elements (water features, plants, etc.) in buildings and public spaces?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

16. **Do you think that buildings and spaces should reflect the cultural identity and history of their community?**

a) Yes, strongly agree
b) Yes, somewhat agree
c) No, somewhat disagree
d) No, strongly disagree
e) Other:

17. **Do you prefer open-concept or more enclosed architectural styles?**

Open concept architecture, also known as open floor plan, is a design approach in which interior spaces in a building are not divided by walls or partitions, creating a seamless and unobstructed flow between different areas. The open concept style is characterized by large, open spaces that combine multiple functions into a single, integrated space.

a) Open-concept
b) Enclosed
c) Other:

18. **How important is the ability to walk or bike to destinations in your community?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

19. **Do you think that buildings and spaces should be designed to promote social interaction?**
Strongly disagree
1
2
3
4
5
Strongly agree

20. **How important is the use of color in buildings and public spaces?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important
e) Other:

21. **Do you think that buildings and spaces should prioritize energy efficiency and conservation?**

a) Yes, strongly agree
b) Yes, somewhat agree
c) No, somewhat disagree
d) No, strongly disagree
e) Other:

22. **How important is the availability of public transportation in your community?**

a) Very important
b) Somewhat important
c) Not very important
d) Not at all important

23. **How important is natural light in a building to you?**

a) Very important
b) Somewhat important
c) Not very important
d) Not important at all
e) Other:

24. **How important is having greenery or plants in a building to you?**

a) Very important
b) Somewhat important
c) Not very important
d) Not important at all
e) Other:

25. **How much does the surrounding environment (e.g. city skyline, nature, etc.) affect your perception of a building?**

a) A lot
b) Somewhat
c) Not very much
d) Not at all
e) Other:

26. **What are some design features that you find visually appealing in a building? 1 - Is considered not appealing, 5 - Very important and appealing in a building**.

1
2
3
4
5

27. **What are some design features that you find unappealing in a building? Please state your answer eg., Clashing colors, overly busy or cluttered design, too much or too little natural light**.

Your answer:

28. **How important is sustainability and energy efficiency in a building to you?**

a) Very important
b) Somewhat important
c) Not very important
d) Not important at all
e) Other:

29**. On a scale of 1 to 5, with 1 being the least important and 5 being the most important, how much does the exterior appearance of a building influence your perception of it?**
1 - Is considered not important, 5 - Very important.

Least important
1
2
3
4
5
Very important

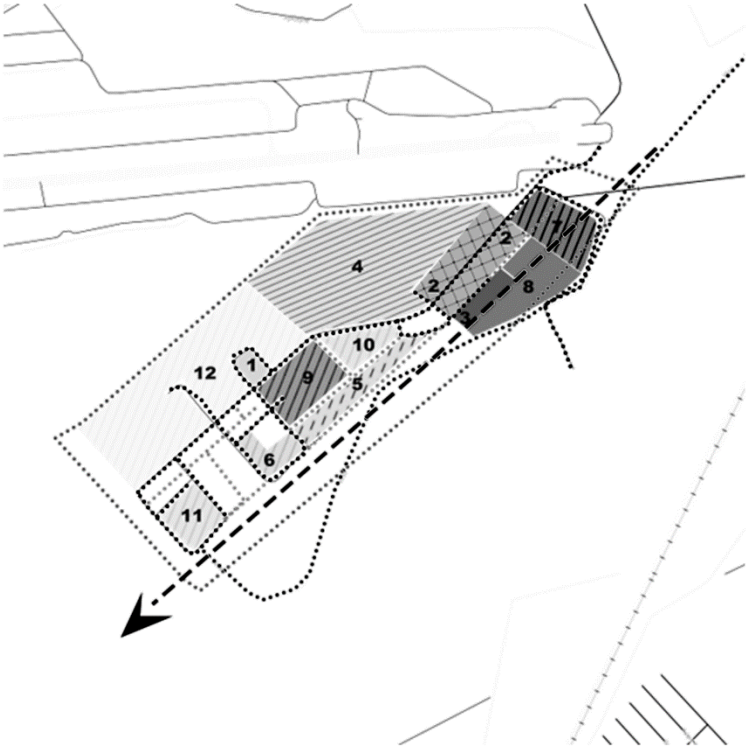
30. **Which of the following factors do you consider most important when assessing the sustainability of a building?**
1 - Is considered not important, 5 - Very important.

1
2
3
4
5

31. **To what extent do you feel that your emotions, memories, and personal experiences influence your perception of architecture? How do you believe phenomenological aspects, such as sensory perceptions and subjective experiences, shape your understanding and appreciation of built spaces?**

Appendix 3. Alternative 1.

Functional zoning and communication scheme. (Džiaugys, 2023)



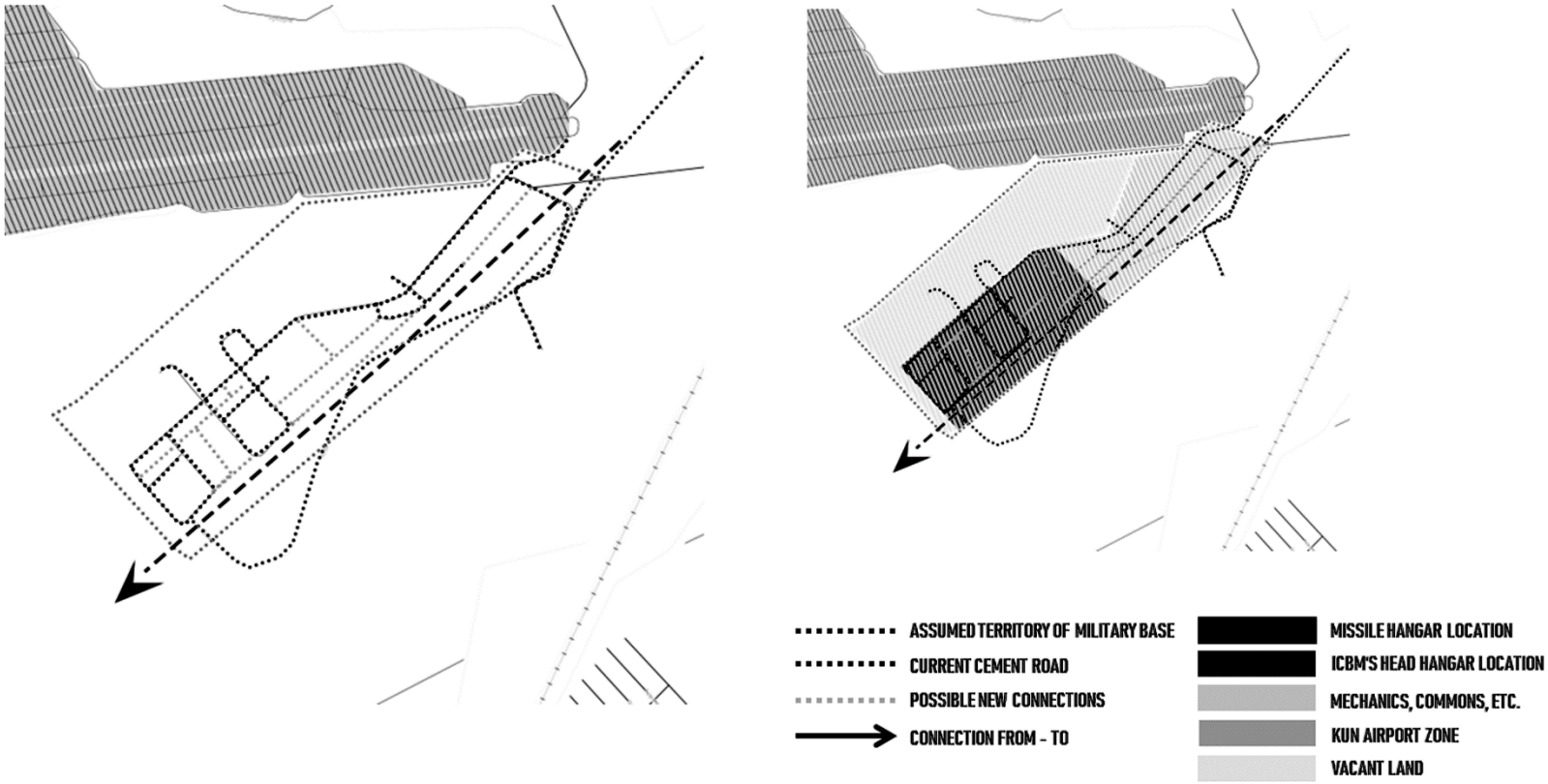
CONTRACTUAL MARKINGS

1. COMMAND AND CONTROL CENTER
2. MAINTENANCE AND REPAIR FACILITIES
3. FUEL AND AMMUNITION STORAGE
4. TRAINING AND TESTING AREAS FOR TANKS
5. BARRACKS AND TEMPORARY LIVING QUARTERS.
6. MEDICAL FACILITIES
7. VEHICLE PARKING AND STORAGE (12)
8. COMMUNICTAION INFRASTRUCTURE
9. SECURITY AND COMMUNICATIONS (AIR DEFENCE SYSTEMS, ON GROUND DEFENCE SYSTEMS HQ)
10. TRAINING GROUNDS
11. LOGISTICS AND SUPPLY CHAIN 11(8)
12. TANK MAINTENANCE AND STORAGE (12)

ADDITIONAL INFORMATION

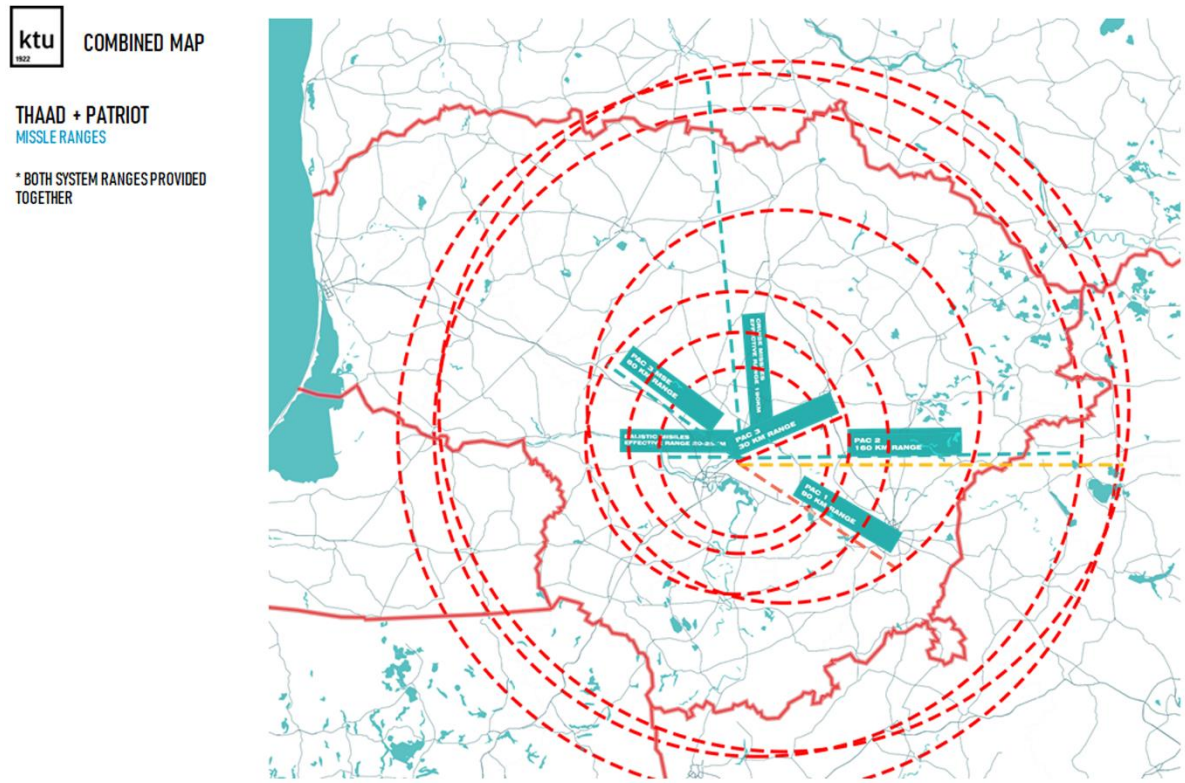
1. TANK IS APPROXIMATELLY 10-11 METERS Lenght AND 3.4 – 4 METERS HIGHT
2. TO STORE ONE TANK HANGAR HAS TO BE ATLEAST 12 X 12 X 4.5 METERS IN DIAMETER.
3. ONE TANK BATALLION IS SAID TO HAVE 40-60 TANKS DEPENDING ON A COUNTRY.

Functional zoning and communication scheme. (Džiaugya, 2023)

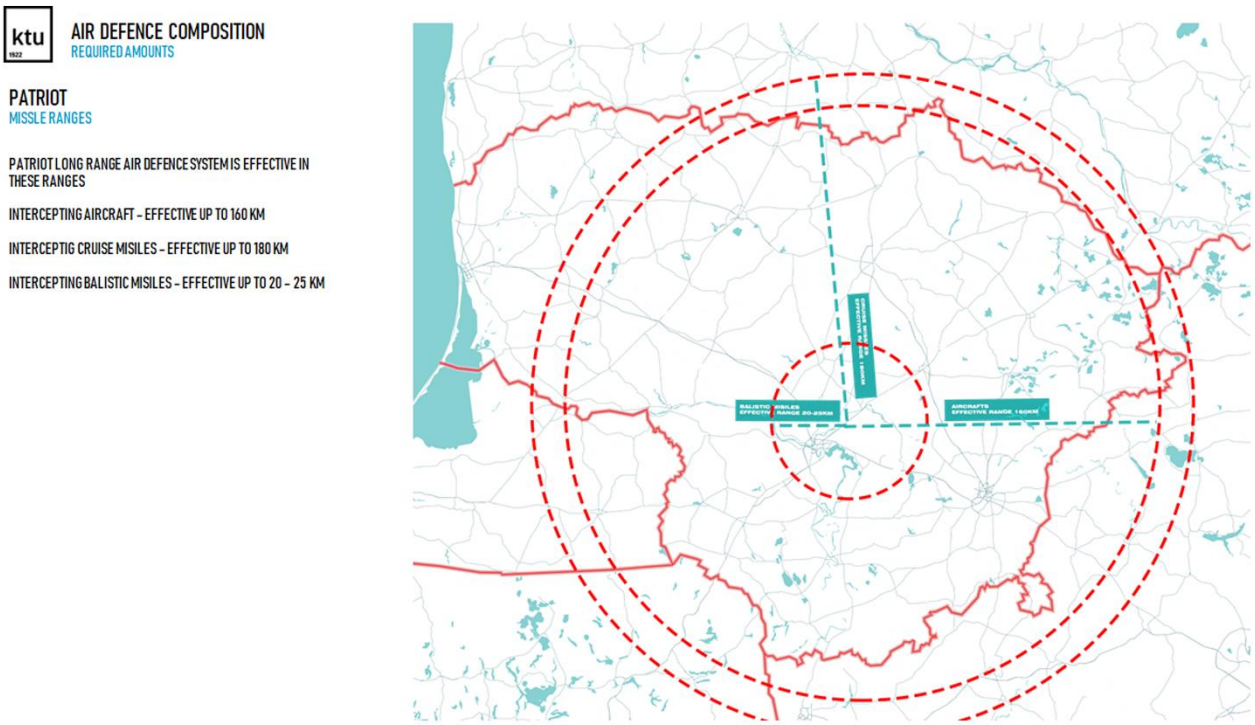


Functional zoning and communication scheme. (Džiaugys, 2023)

Appendix 4. Alternative 2 – Additional research on air defence systems and possibilities.



Combined map of two separate air defence system effective range. (Džiaugys, 2023)



Patriot air defence system and its effective range. (Džiaugys, 2023)

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AIR DEFENCE COMPOSITION
REQUIRED AMOUNTS

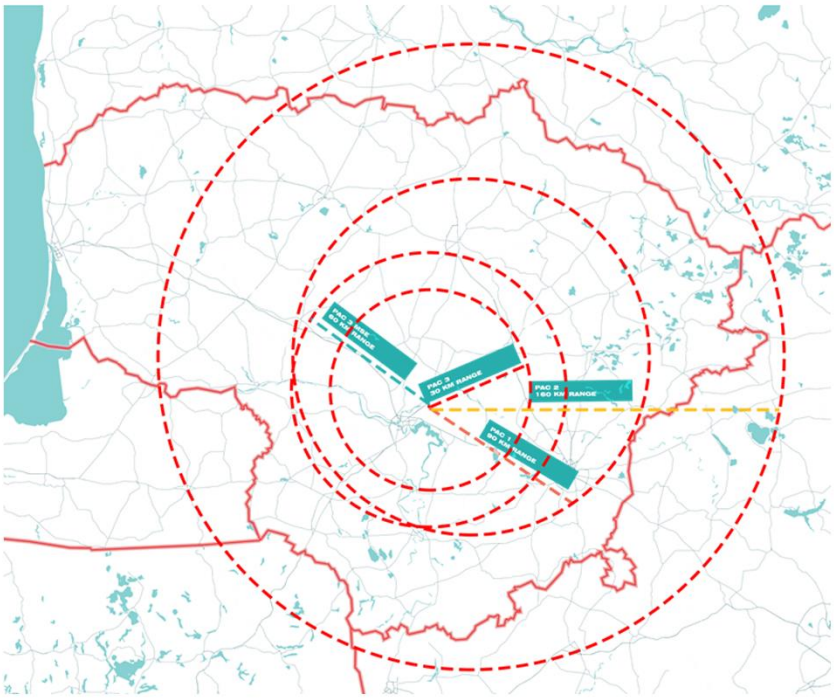
THAAD
MISSLE RANGES

PAC 1 - 90 KM EFFECTIVE RANGE

PAC 2 - 160 KM EFFECTIVE RANGE

PAC 3 - 30 KM EFFECTIVE RANGE (AGAINST BALISTIC MISSLES)

PAC 3 MSE - 60 KM EFFECTIVE RANGE



THAAD air defence system and its effective range. (Džiaugys, 2023)

AIR DEFENCE COMPOSITION
PATRIOT

ENGAGEMENT CONTROL STATION
CONSISTS OF

1. ROUTING LOGIC RADIO INTERFARENCE UNIT
2. WEAPONS CONTROL COMPUTER
3. UHF COMMUNICATION ARRAY
4. DATA LINK TERMINAL

M90X
LAUCHING STATION

PATRIOT : PHASED ARRAY TRACKING RADAR TO INTERCEPT ON TARGET

1. 4X MIM - 104B PAC1
2. 4X MIM - 104B PAC1
3. 16X MIM - 104F PAC3

CONNECTION
OF BATTERIES

1 WEAPONS CONTROL COMPUTER CAN CONNECT TO 8 - 16 M90X LAUCHING STATION.

1 BATTERY CONSISTS OF 16 LAUNCHERS.

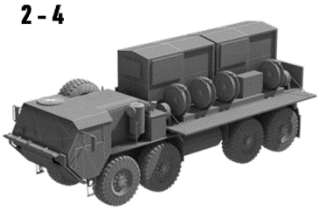
POSSIBILITIES
OF PATRIOT SYSTEM

PATRIOT LONG RANGE AIR DEFENCE SYSTEM CAN WORK AUTONOMOUSLY AND CAN TRACK UP TO 100 TARGETS SIMULTANEOUSLY

SPECIFICATION
OF PATRIOT SYSTEM

	MIM-104A	MIM-104D/E PAC-2	MIM-104F PAC-3	MIM-104F PAC-3 MSE
Mass	907.2 kg (2,000 lb)	900 kg (2,000 lb) (est)	315 kg (694 lb)	Unknown
Length	5.3 m (17 ft 5 in)	5.8 m (19 ft) (est)	5.2 m (17 ft 1 in)	5.3 m (17 ft 5 in) (est)
Diameter	410 mm (16 in)	410 mm (16 in) (est)	255 mm (10 in)	290 mm (11 in) (est)
Wingspan	870 mm (34 in)	5,863 mm (230.8 in) (est)	Unknown	Unknown

2 - 4



5

6

Patriot Air defence system composition and specifications. (Džiaugys, 2023)

AIR DEFENCE COMPOSITION
PATRIOT

ENGAGEMENT CONTROL STATION
CONSISTS OF

1. ROUTING LOGIC RADIO INTERFARENCE UNIT
2. 2x WEAPONS CONTROL COMPUTER
3. UHF COMMUNICATION ARRAY
4. ANTENNA EQUIPMENT UNIT
5. GROUND BASED RADAR
6. ELECTRONICS EQUIPMENT UNIT
7. COOLING UNIT
8. POWER UNIT
9. ALTERNATE CONFIGURATION

THAAD
LAUCHING STATION

PATRIOT : PHASED ARRAY TRACKING RADAR TO INTERCEPT ON TARGET

1. 8X MIM - AN/TPY-2

CONNECTION
OF BATTERIES

1 WEAPONS CONTROL COMPUTER CAN CONNECT TO 9 AN/TPY-2 LAUCHING STATION.

1 BATTERY CONSISTS OF 9 LAUNCHERS.

POSSIBILITIES
OF THAAD

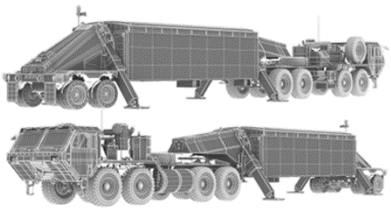
THAAT - Terminal High Altitude Area Defense DOES NOT OPERATE AUTONOMOUSLY.

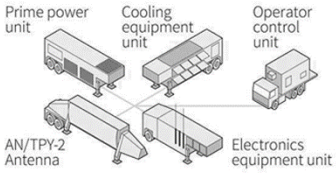
SPECIFICATION
OF THAAD SYSTEM

SPECIFICATIONS	
Mass	900 kg
Length	6.17 m
Diameter	340 mm (13 in) (booster); 370 mm (15 in) (kill vehicle)

SPECIFICATION
OF ANTENNA, ELECTRONIC, COOLING UNITS.

SPECIFICATIONS	
Mass	27-34 Tons
Length	12 – 12,8 m
Height	2,6 m

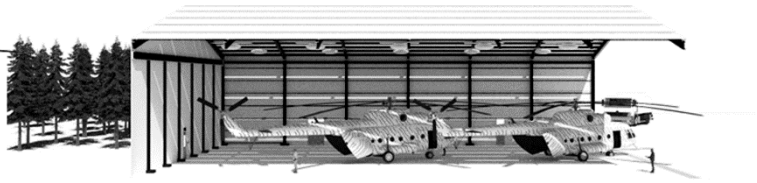




THAAD air defence system composition and specifications. (Džiaugys, 2023)

BUILDING COMPOSITION
CLASSIFICATION OF BUILDINGS AND REQUIRED SPACES

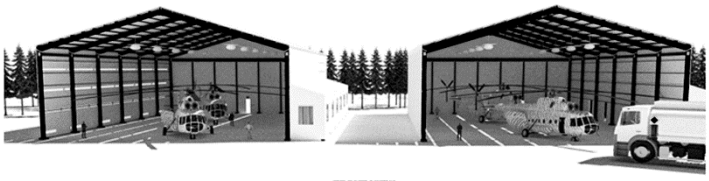
Mil Mi-8



SECTION CUT

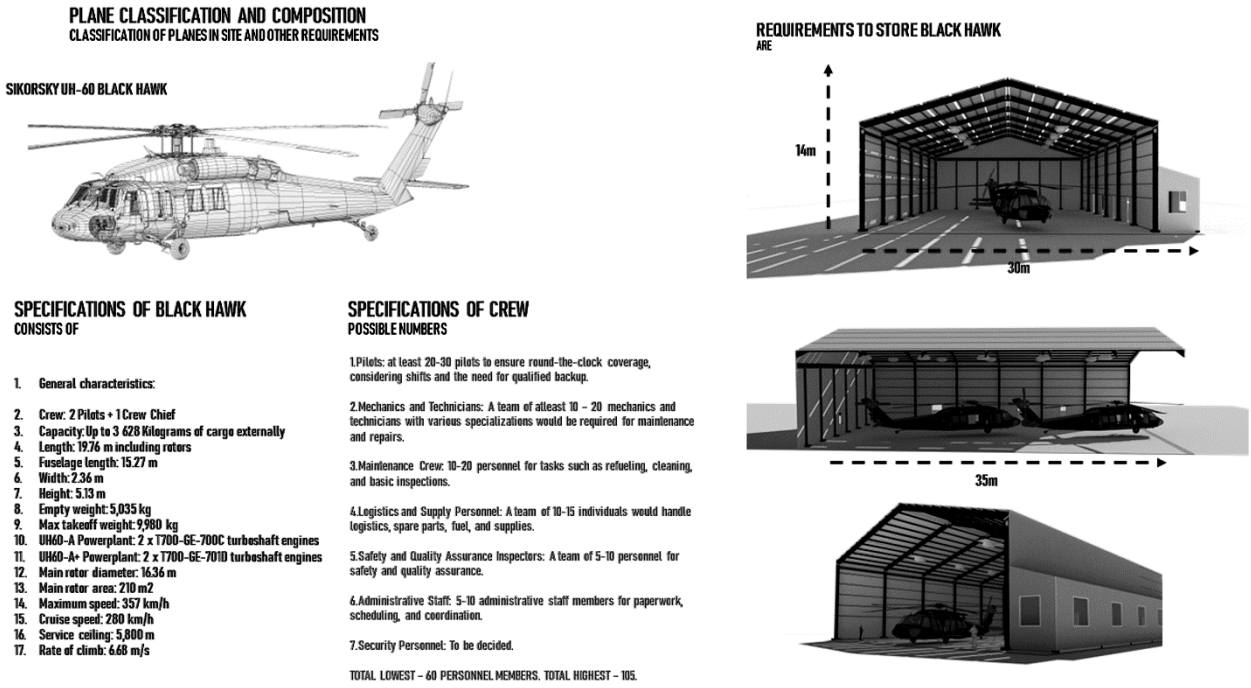
SPECIFICATIONS OF MIL MI - 8
CONSISTS OF

1. Manufacturer - Russia
2. Length with rotating screws : 25,4 m
3. Height / Width : 5.7 m / 2.5 m
4. Chute length : 18,4 m
5. Main / tail screw diameters :21,3 m / 3,9 m
6. Maximum take-off mass: 13000 kg
7. Empty helicopter mass: 7100 - 7370 kg
8. Number of blades : 5 / tail : 3
9. Engines : 2 -Isotov TV3-117VM
10. Maximum speed : 250 km/h
11. Aerodynamic ceiling : 6000 m
12. Cargo mass : Inside - 4000 kg on external suspension - 3000 kg
13. Seating capacity - 24
14. Crew - 2 pilots, 1 on-board technician
15. Avionics - Meteo radar; FLIR; HF, VHF, UHF radios; 4 channel autopilot

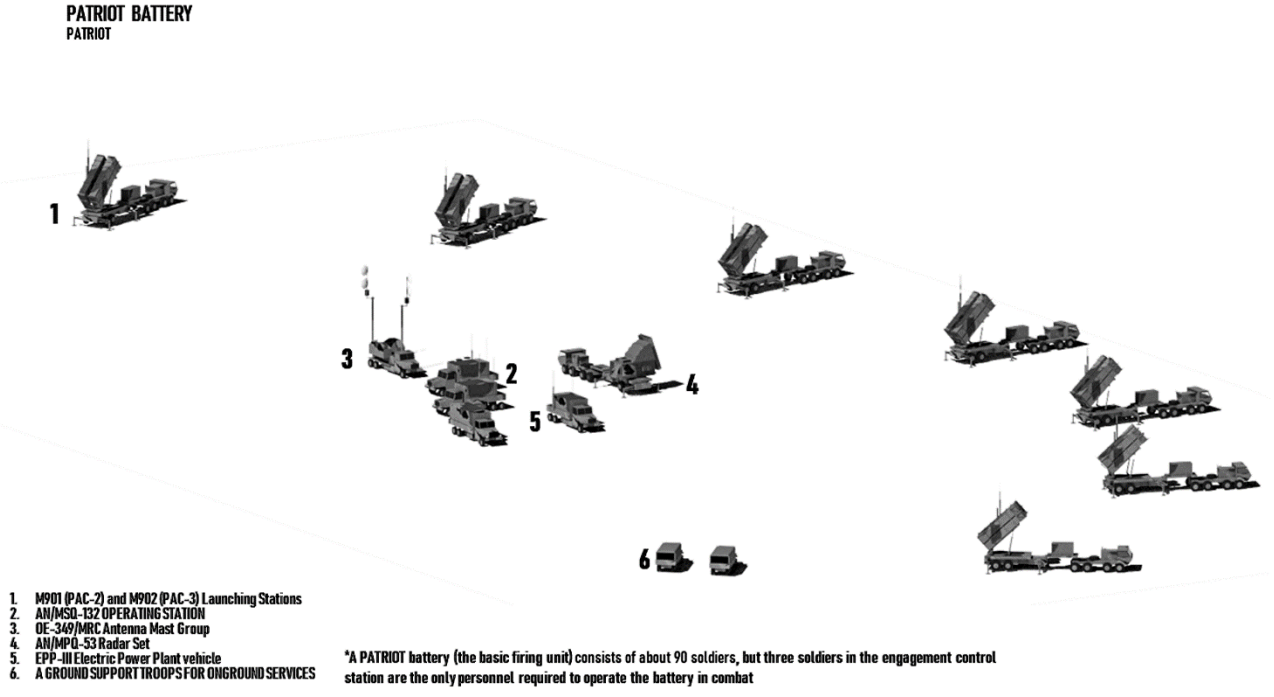


FRONT VIEW

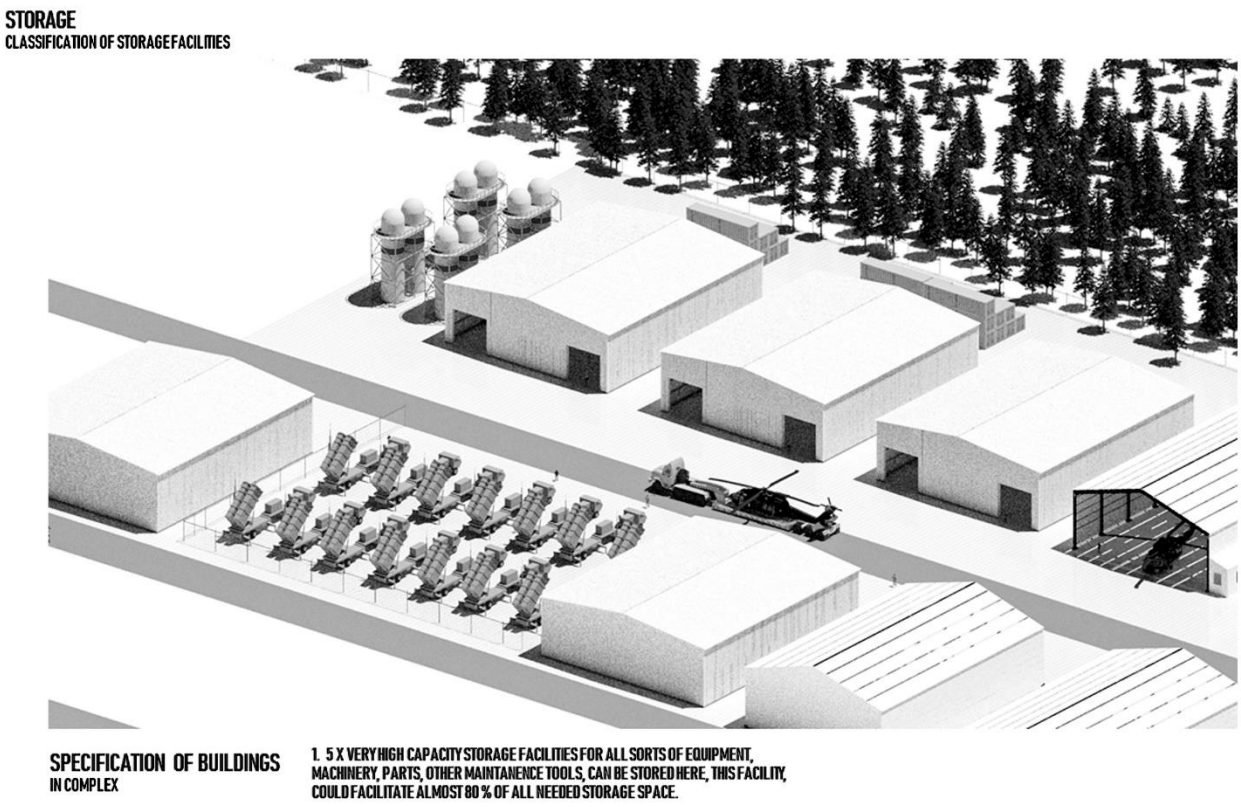
Classification of building and required spaces, specifications of MIL MI – 8 helicopters. (Džiaugys, 2023)



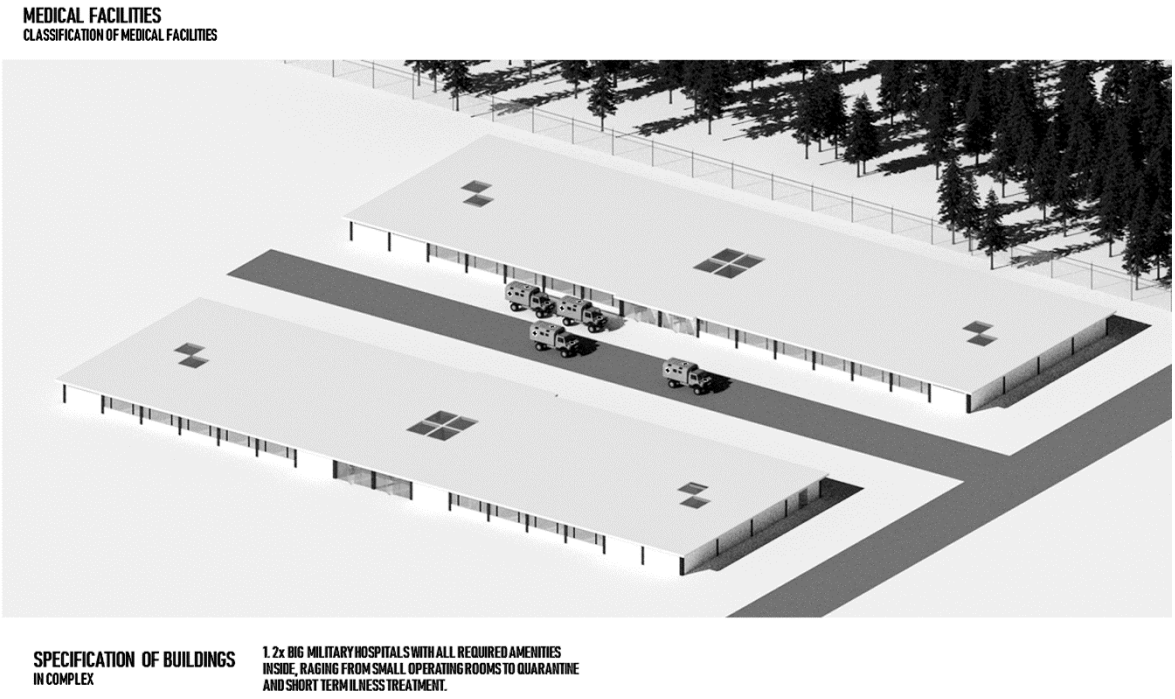
Classification of building and required spaces, specifications of Sikorsky Uh – 60 black hawk helicopters. (Džiaugys, 2023)



Patriot battery and specifications. (Džiaugys, 2023)

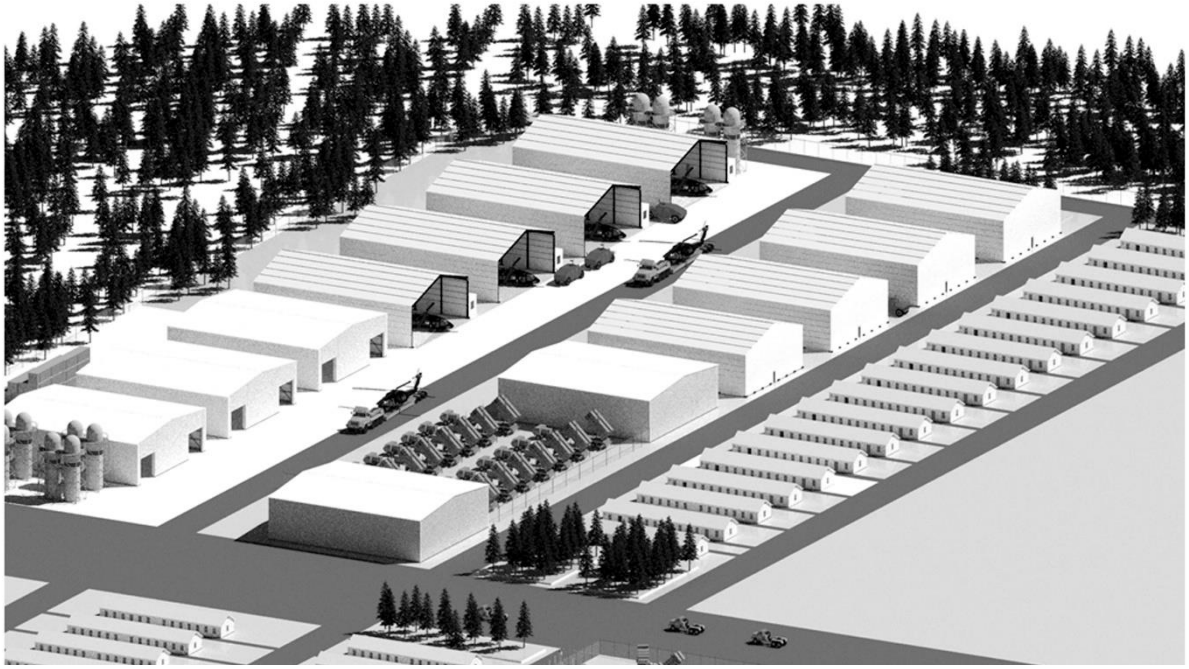


Werehouse and maintenance complex. (Džiaugys, 2023)

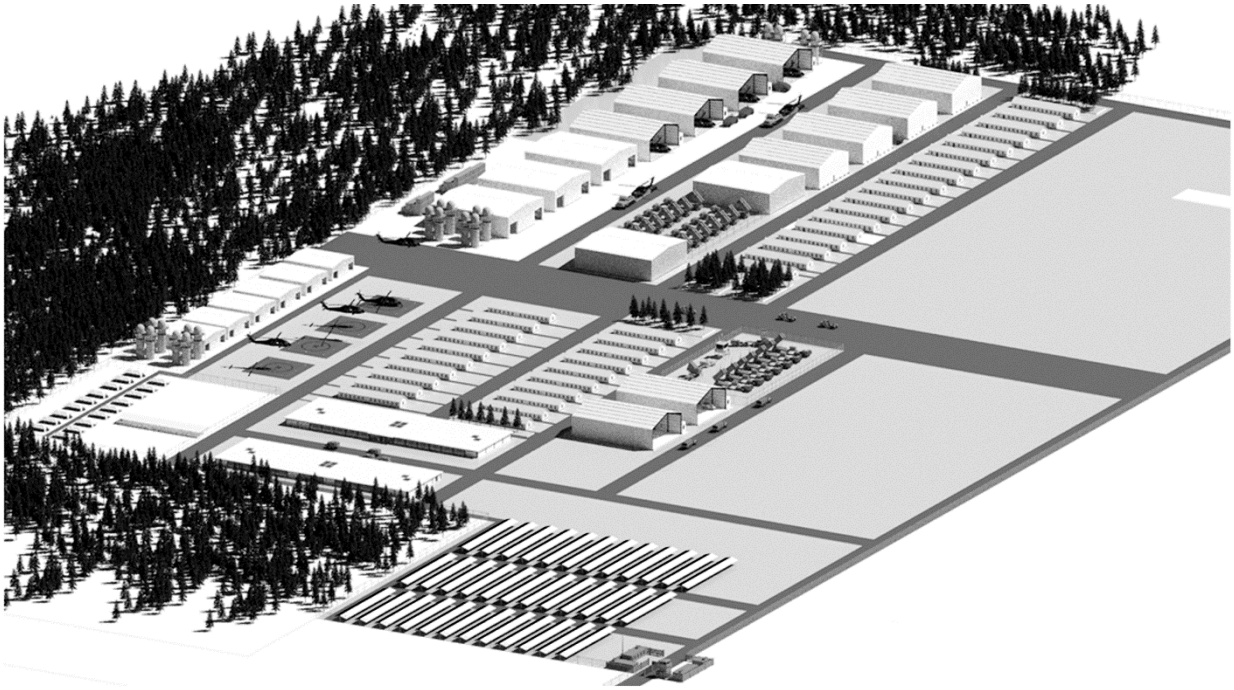


Medical facilites. (Džiaugys, 2023)

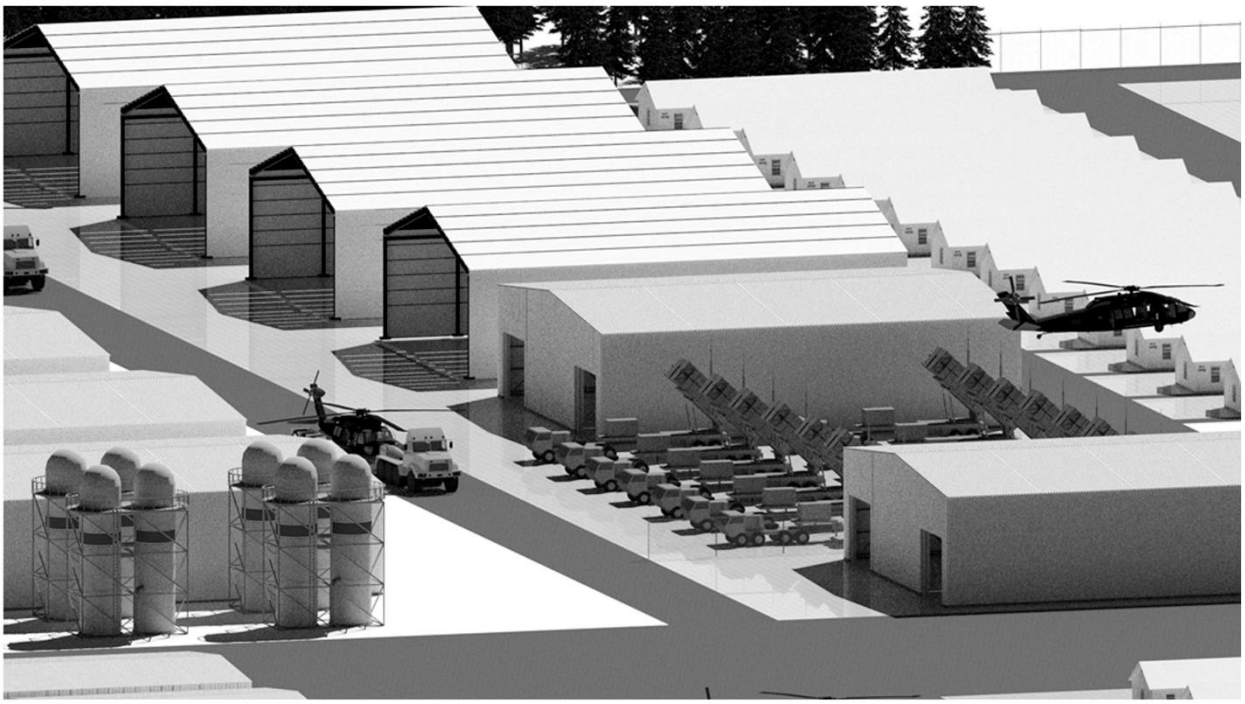
BARRACKS
CLASSIFICATION OF BARRACKS



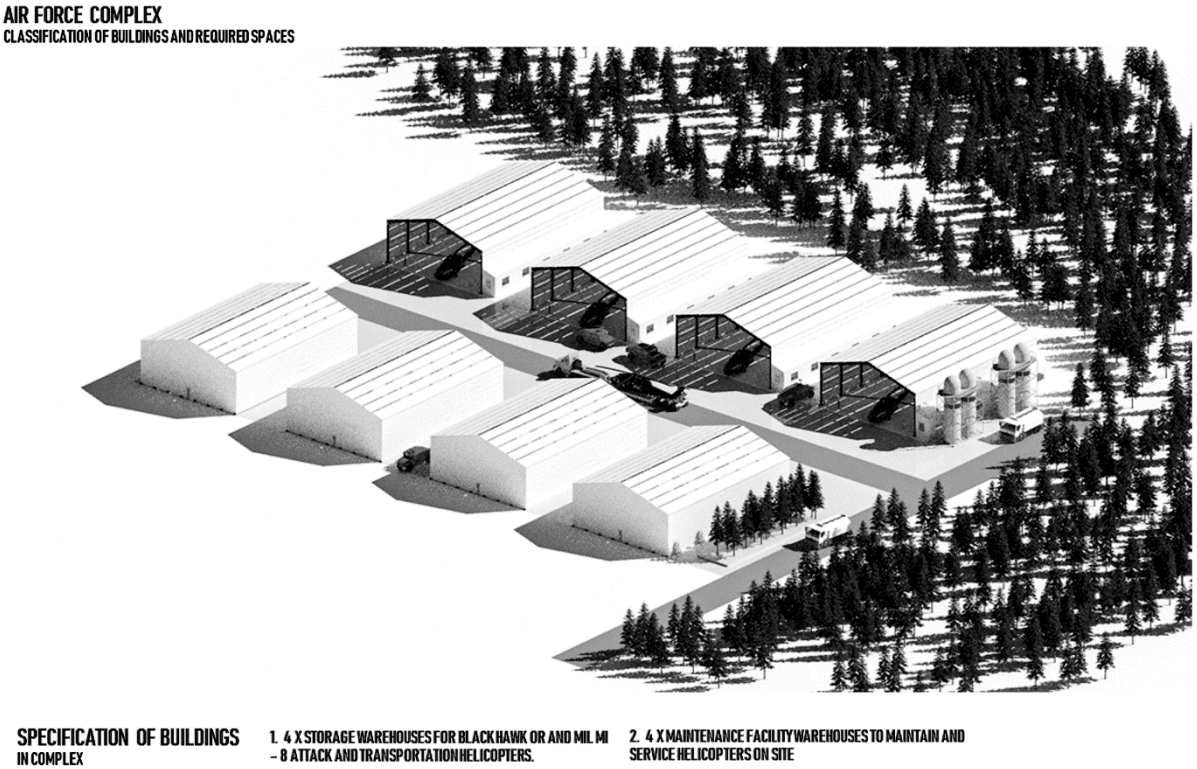
Warehouse, maintenance and accommodation barracks view. (Džiaugys, 2023)



Full military complex view. (Džiaugys, 2023)



Warehouses and maintenance facilities. (Džiaugys, 2023)



Air force warehouse complex. (Džiaugys, 2023)

Appendix 5. Exploring architectural possibilities: Investigating line movement, deconstruction, and shape manipulation

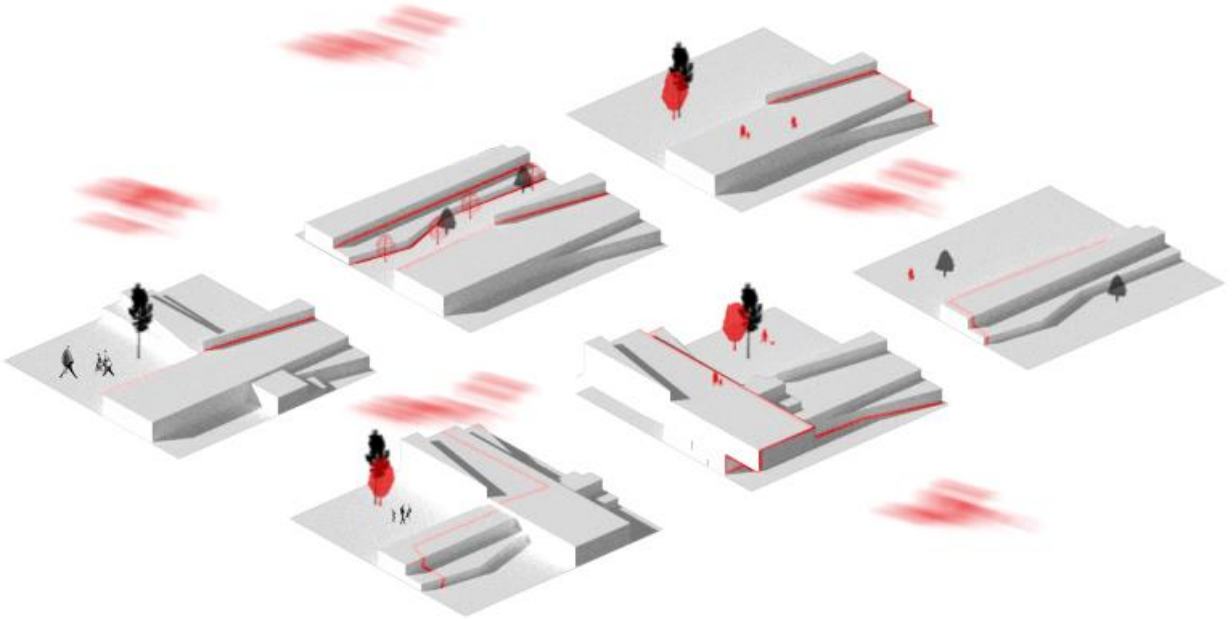
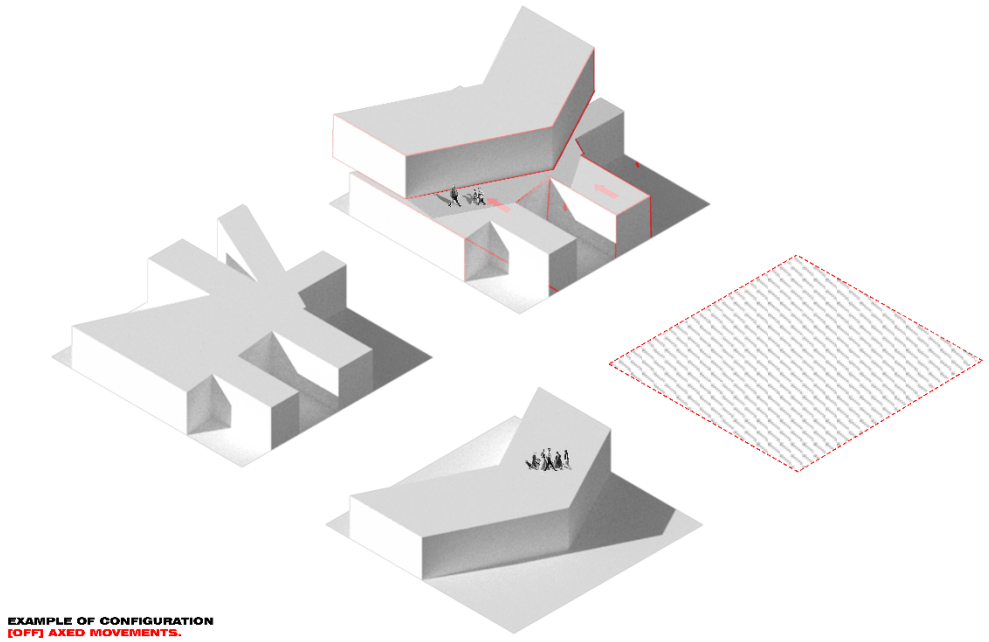
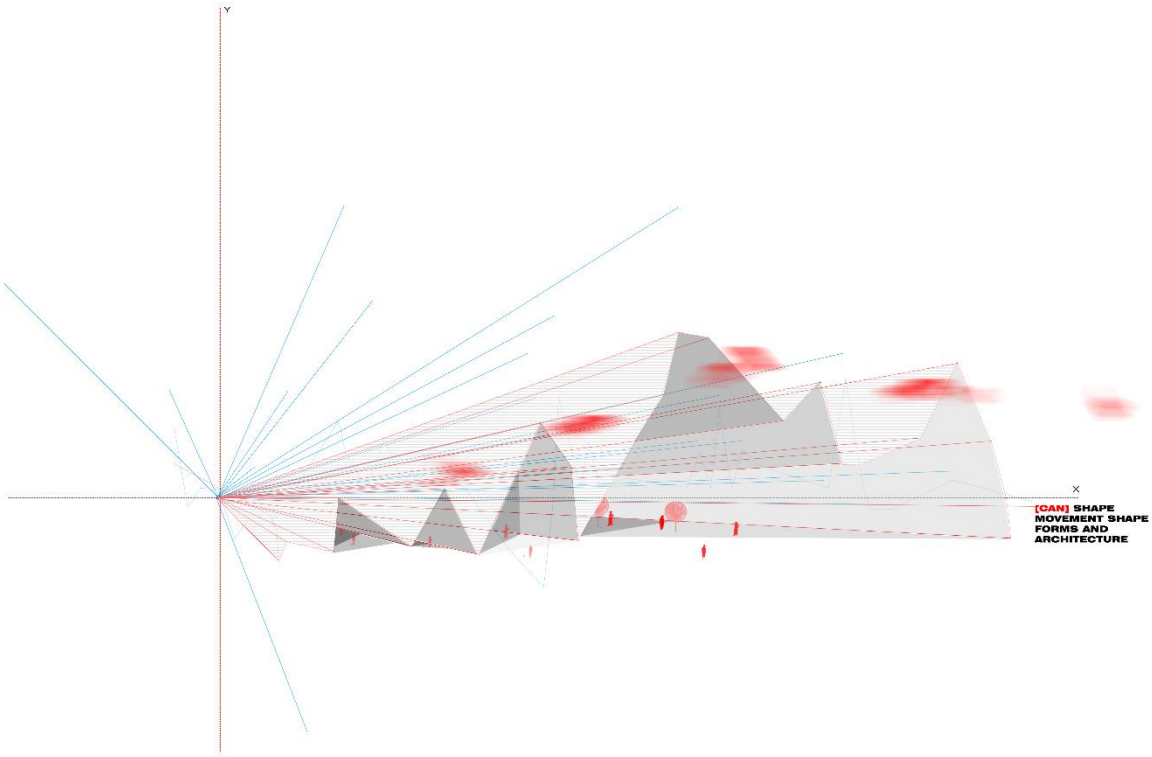


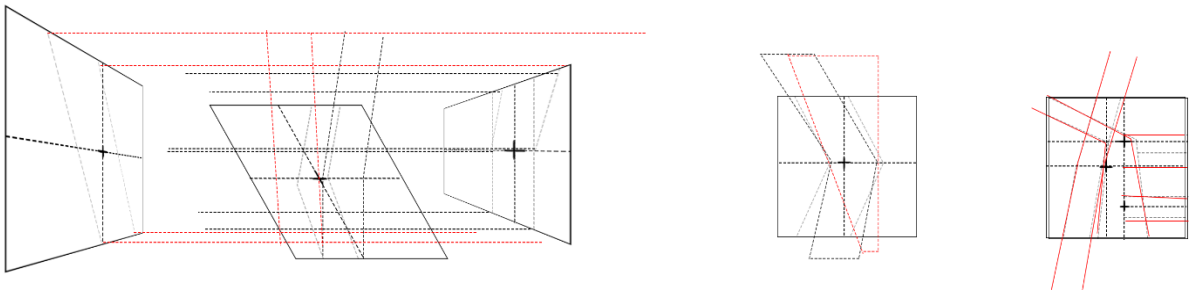
Diagram explaning shape manipulation results applied to architectural design. (Džiaugys, 2023)



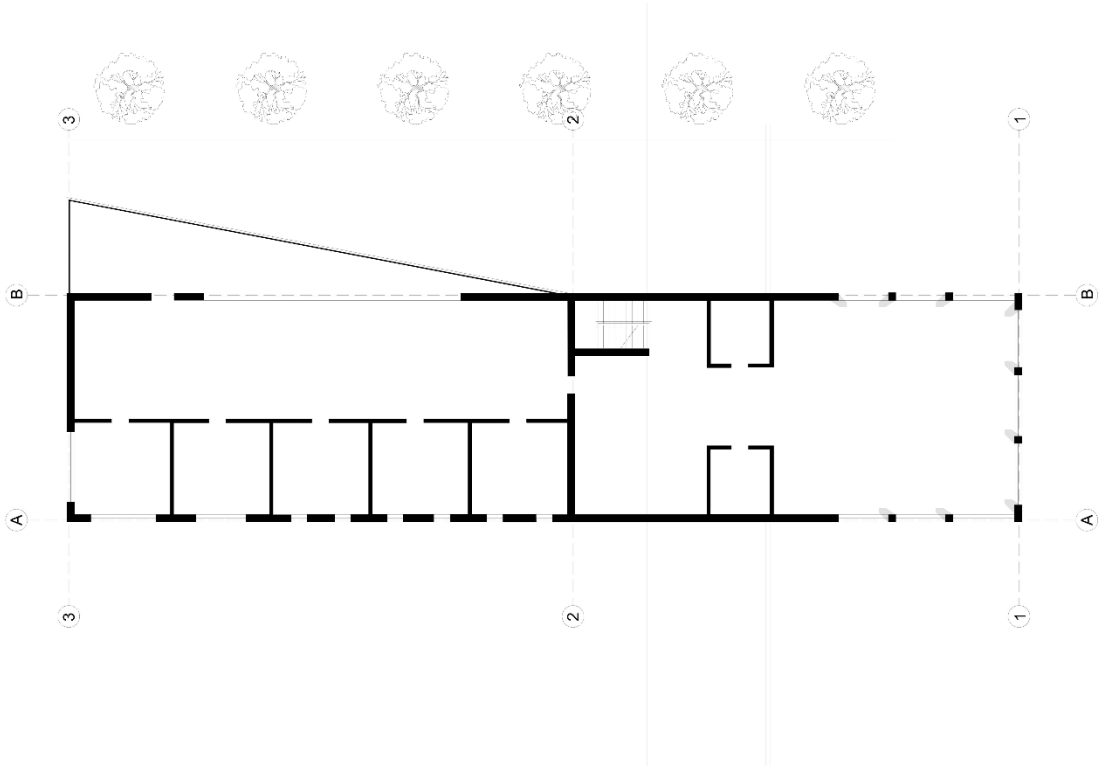
Example of configuration of axed movements. (Džiaugys, 2023)



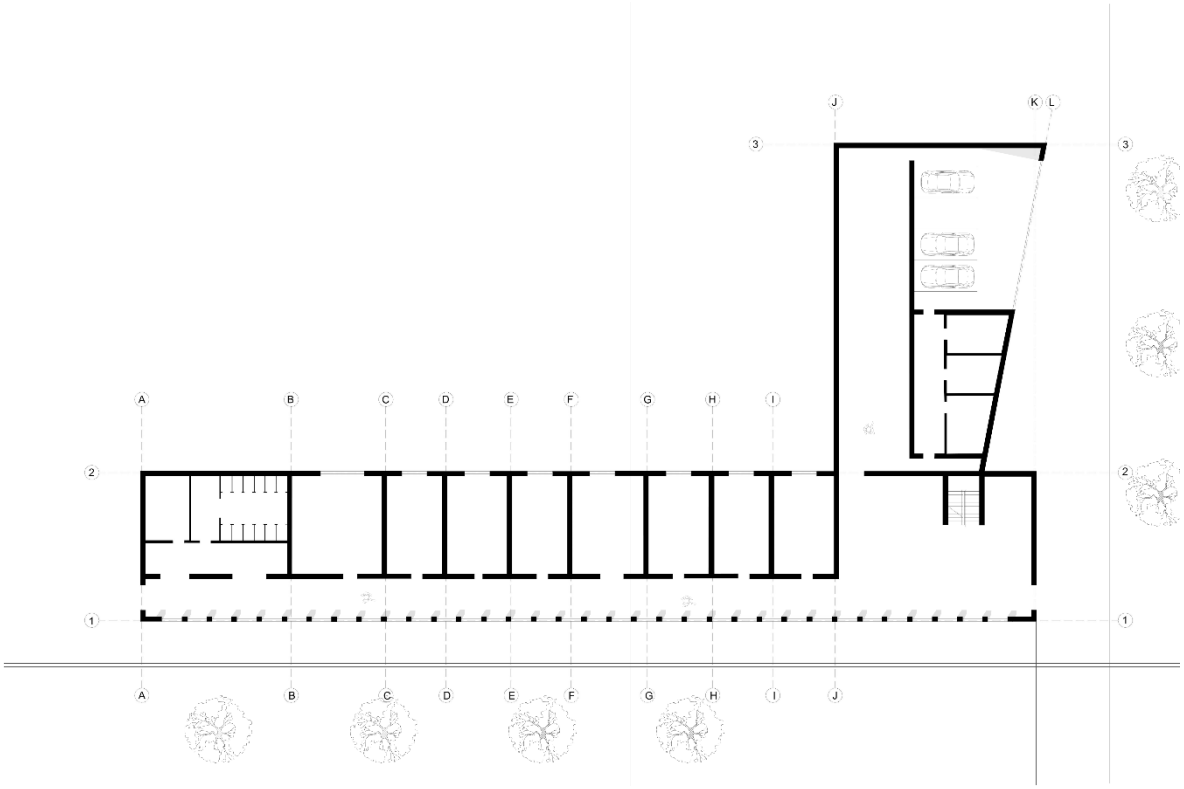
Experimental forming of shapes from research result graphs. (Džiaugys, 2023)



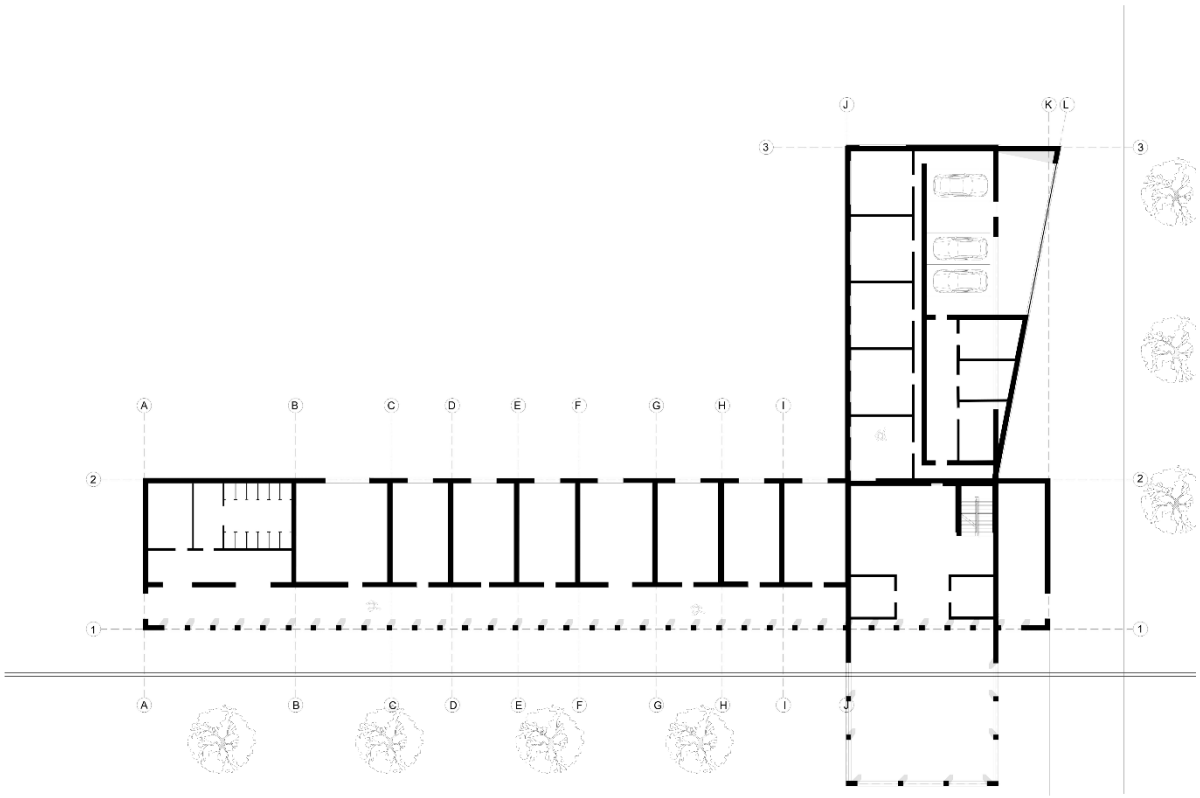
Experimental transformation of 2d plane to 3d plane of merged shapes. (Džiaugys, 2023)



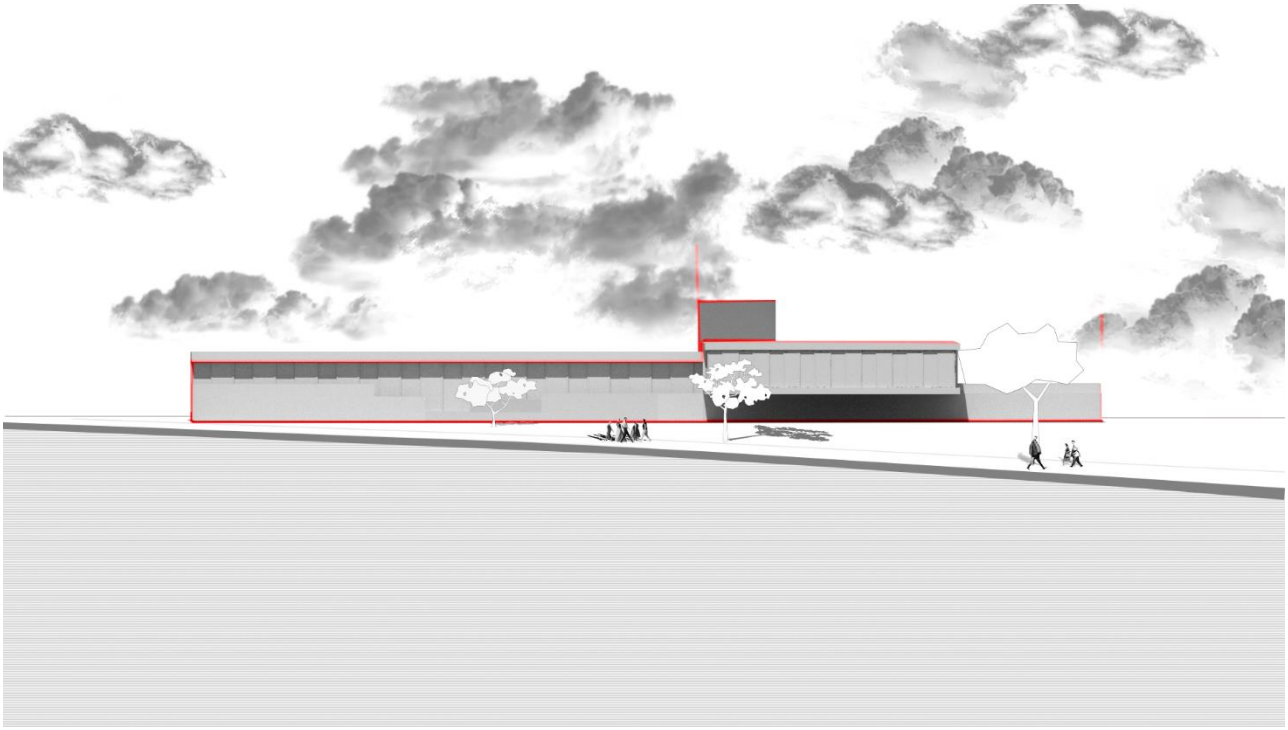
First Floor plan generated from shape movement and manipulation research results. (Džiaugys, 2023)



Second floor plan generated from shape movement and manipulation research results. (Džiaugys, 2023)

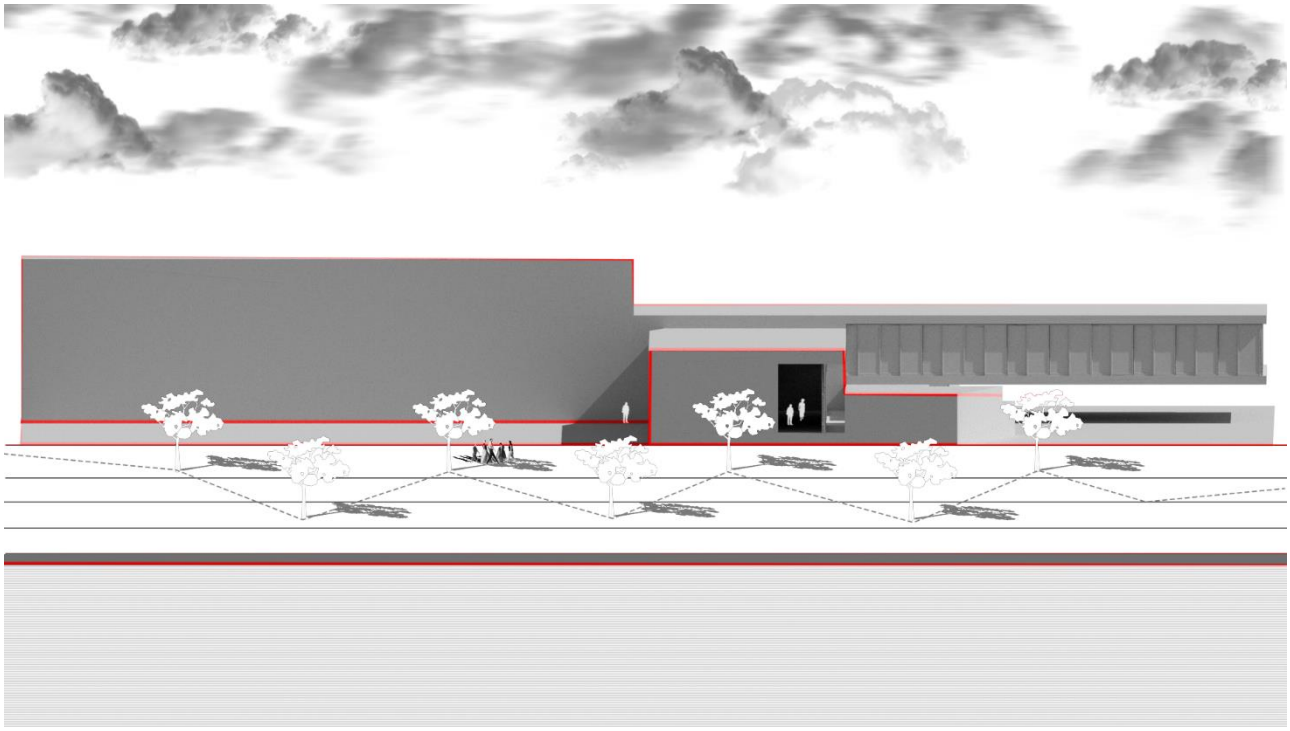


Plans combined (Džiaugys, 2023)

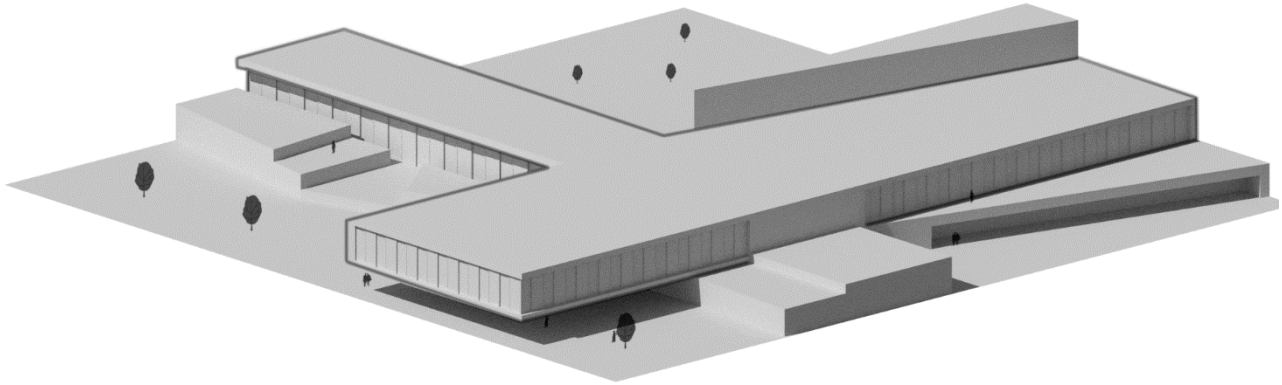


Façade of building generated from research results. (Džiaugys, 2023)

Façade of building generated from research results. (Džiaugys, 2023)

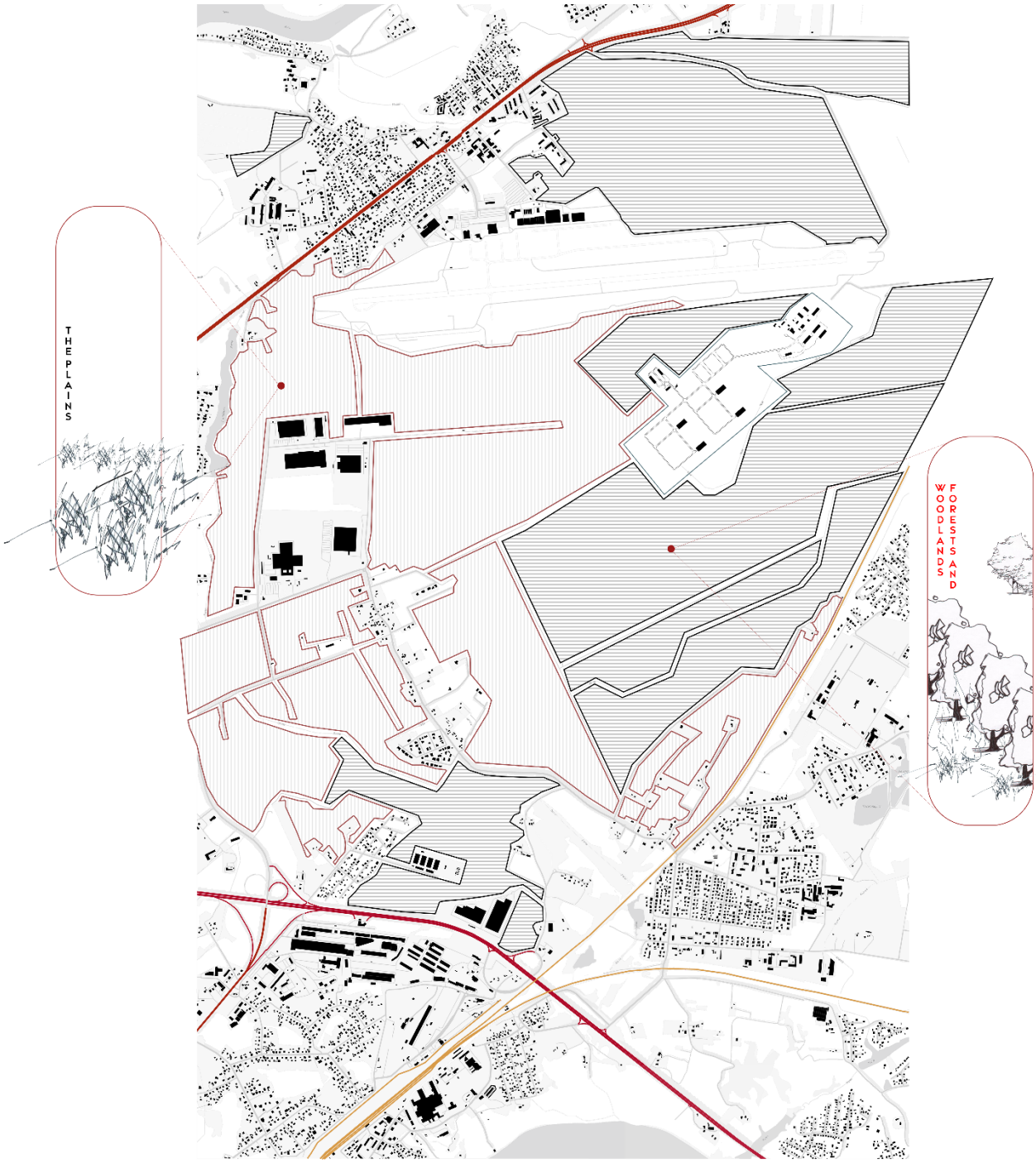


Façade of building generated from research results. (Džiaugys, 2023)

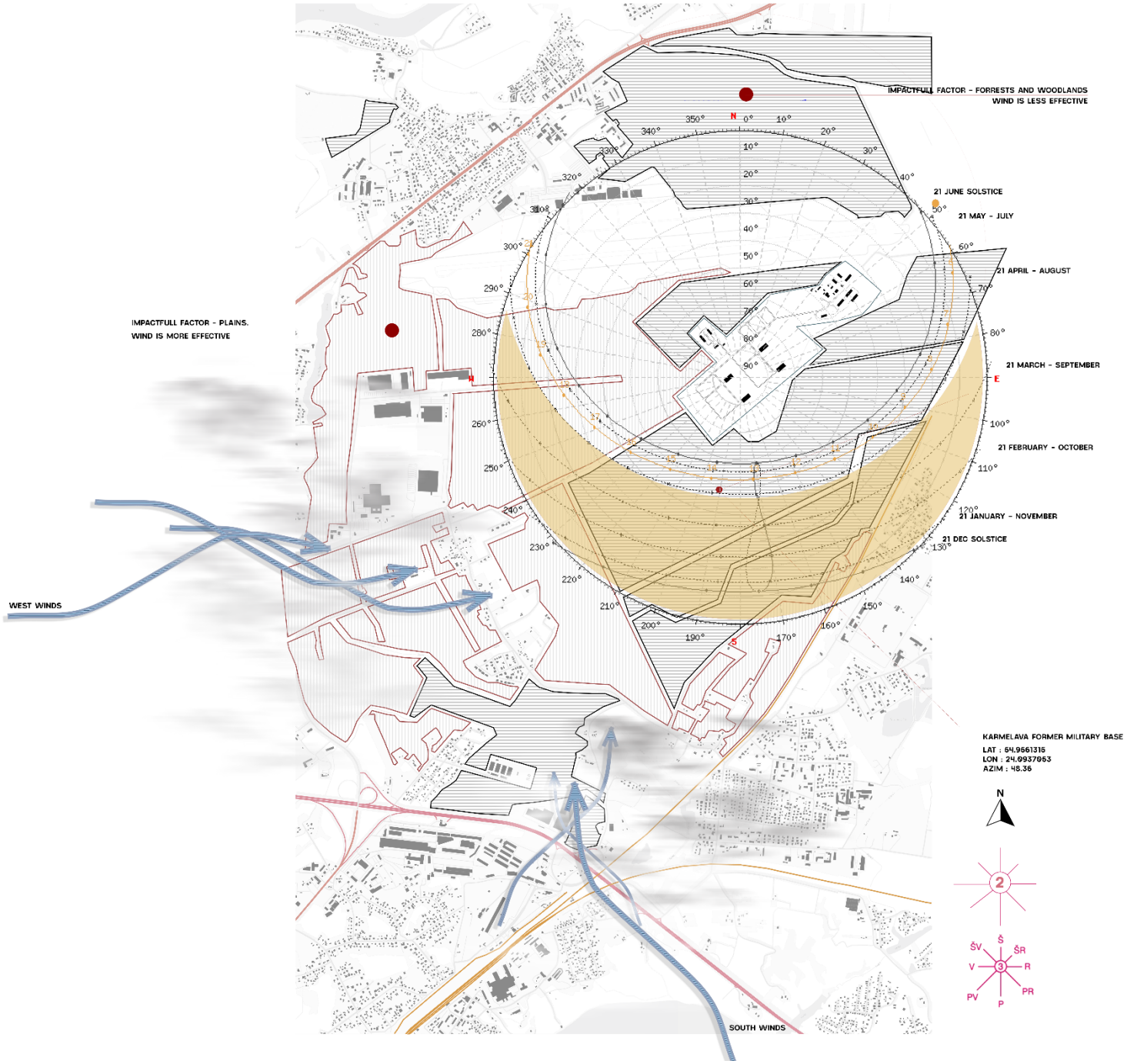


Axonometric view of building generated from research results. (Džiaugys, 2023)

Appendix 6. Site analysis and experimental project.

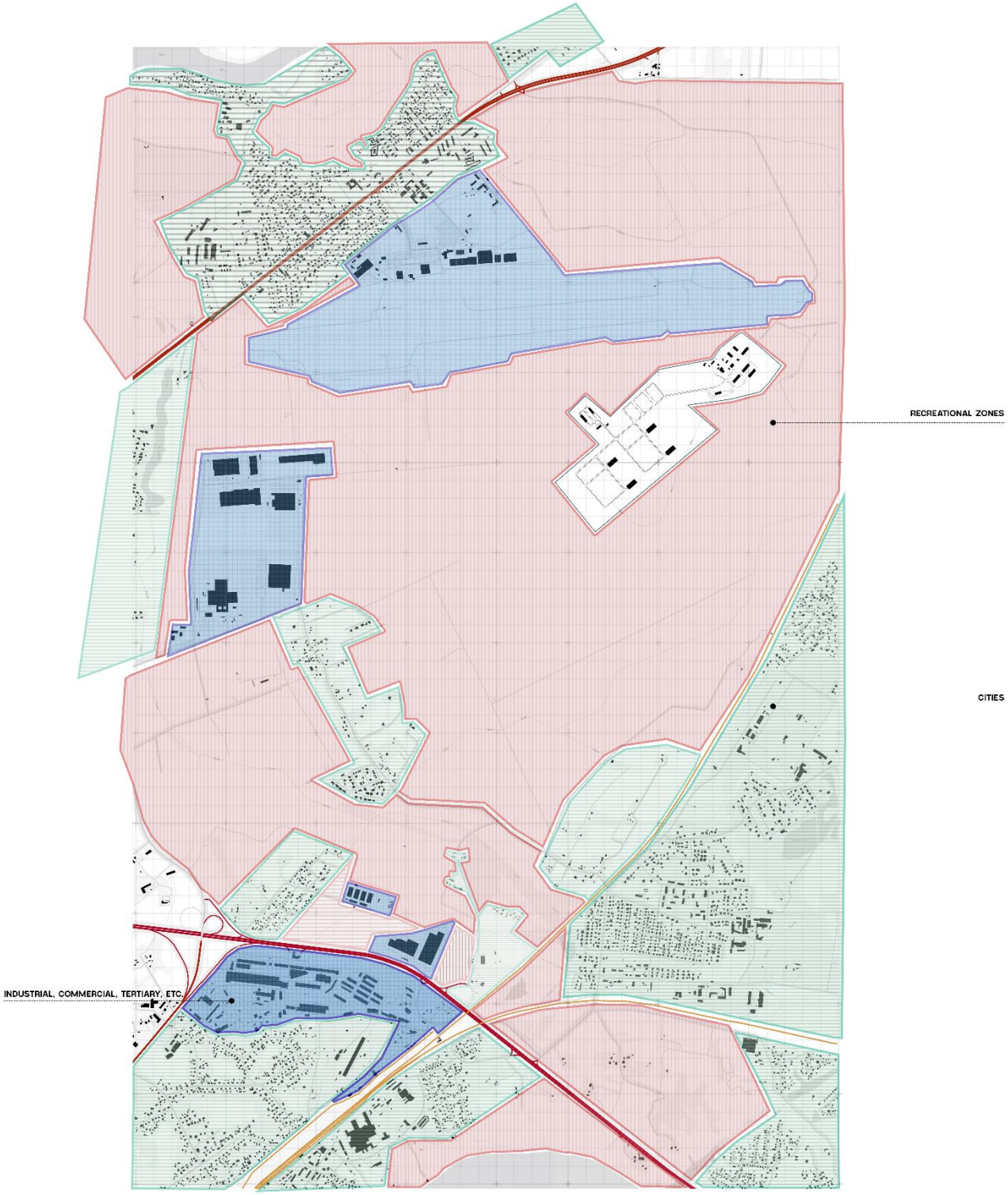


Forrest management, coverage and landuse. (Džiaugys, 2023)

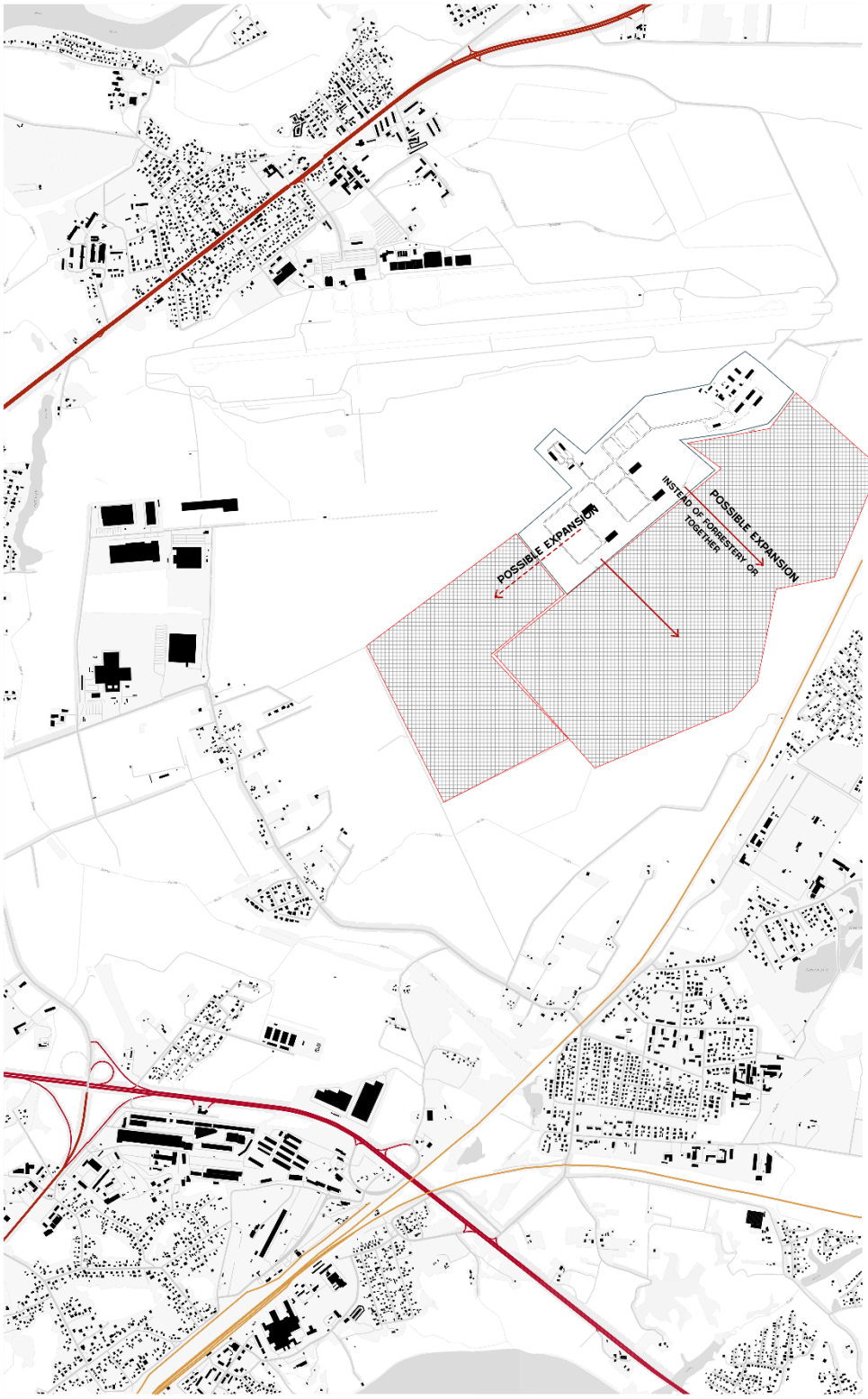


Climate analysis. (Džiaugys, 2023)

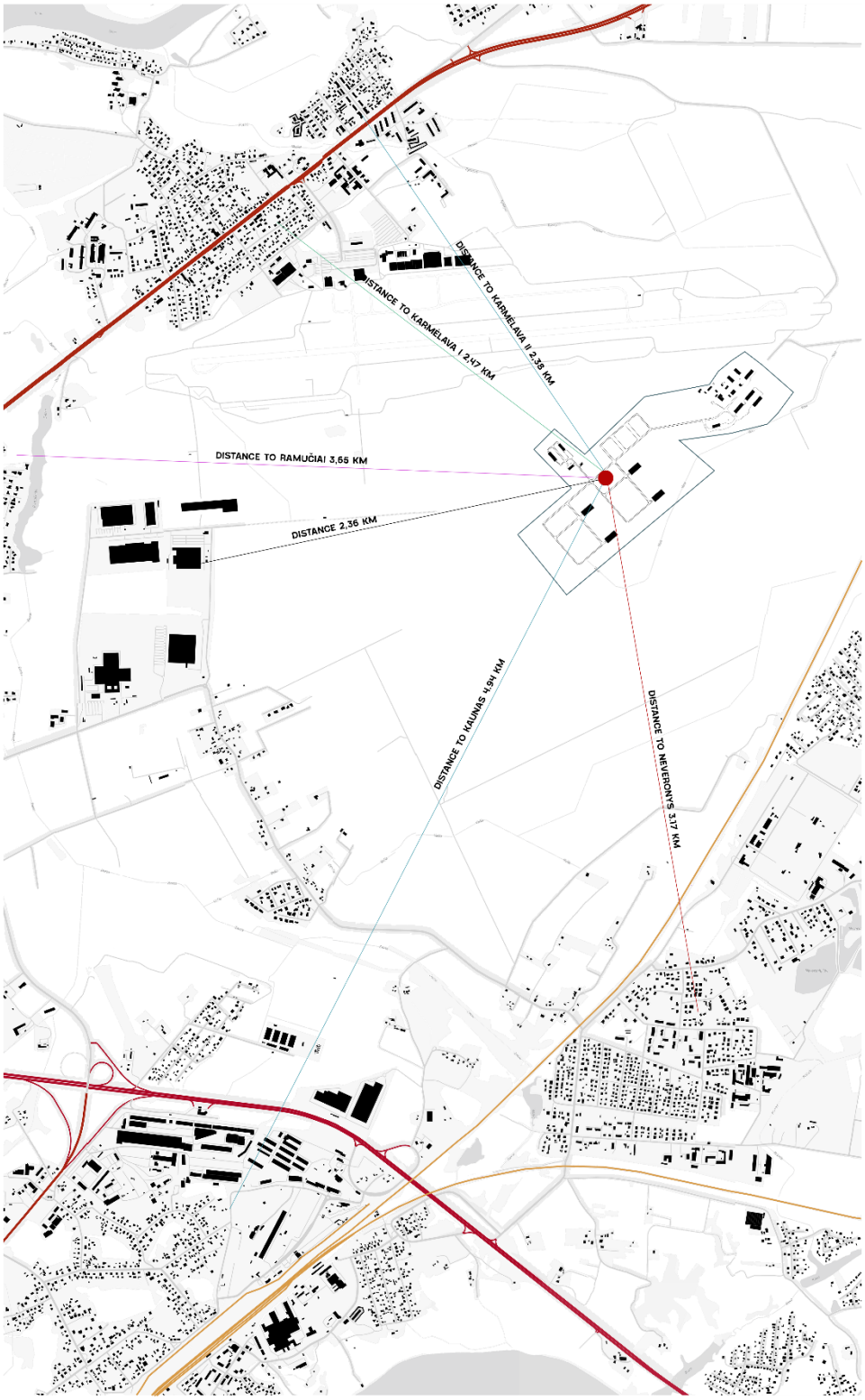
Most important and strategic objects and roads. (Džiaugys, 2023)



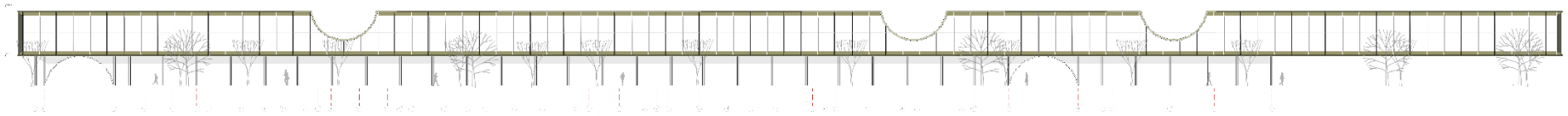
Functional zoning. (Džiaugys, 2023)



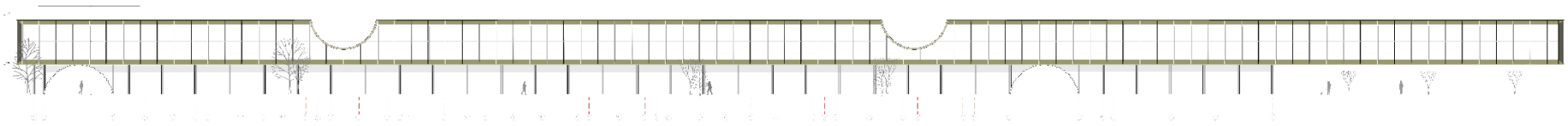
Expansion possibilities. (Džiaugys, 2023)



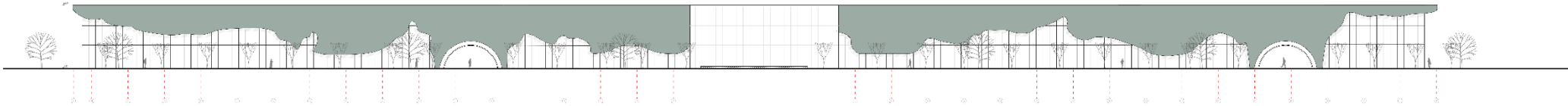
Distances to closest cities and infrastructure. (Džiaugys, 2023)



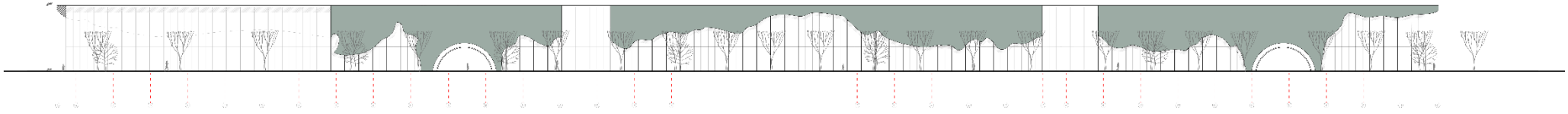
The proposed wester façade before the changes. (Džiaugys, 2024)



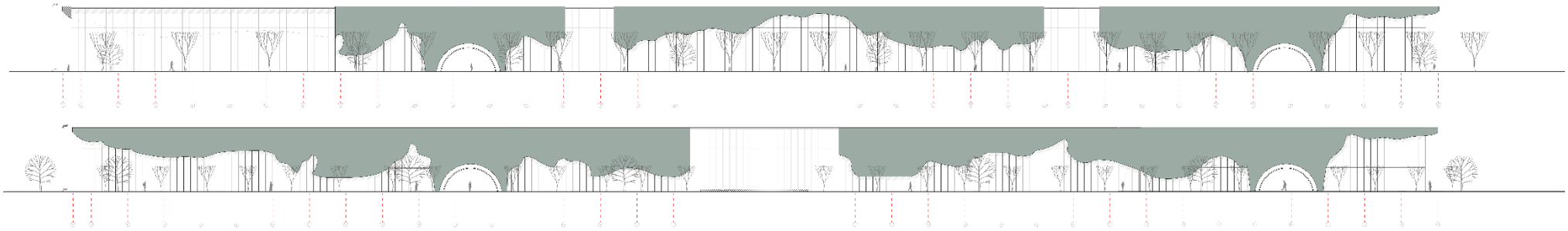
The proposed Eastern façade before the changes.
(Džiaugys, 2024)



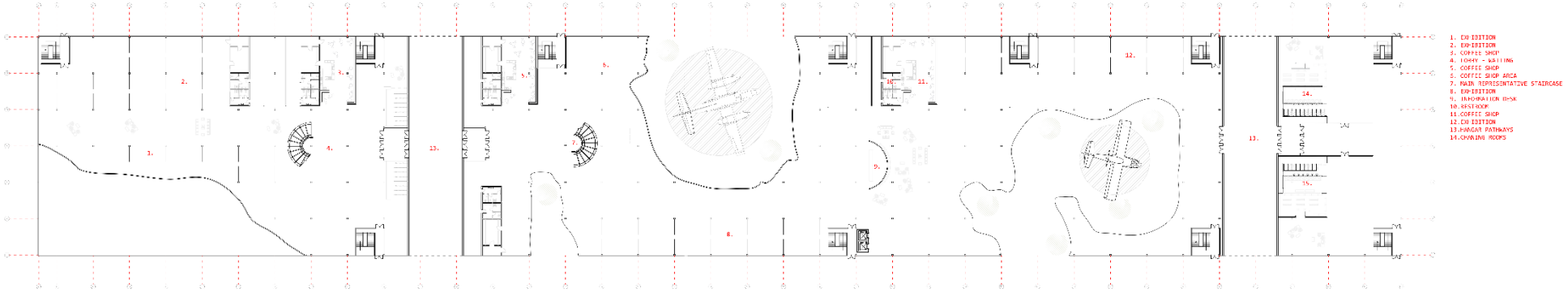
New proposed facade after changes and redevelopment. (Džiaugys, 2024)



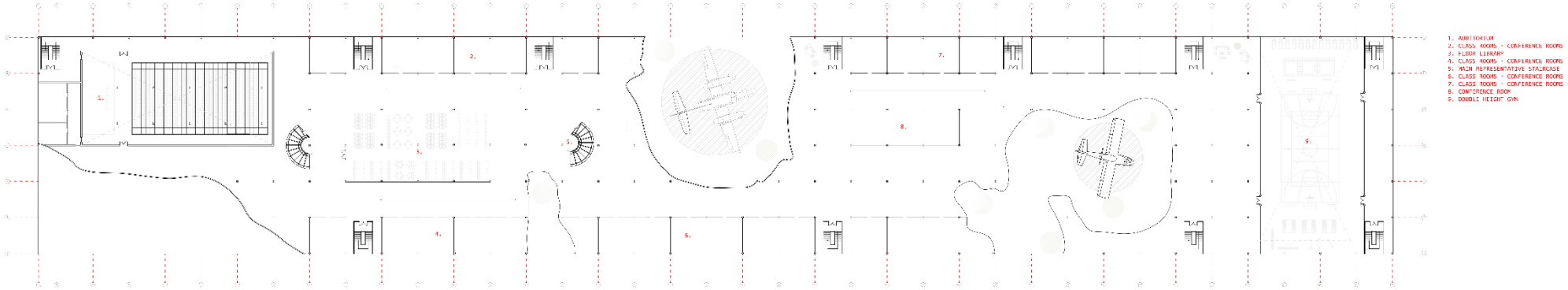
New proposed facade after changes and redevelopment. (Džiaugys, 2024)



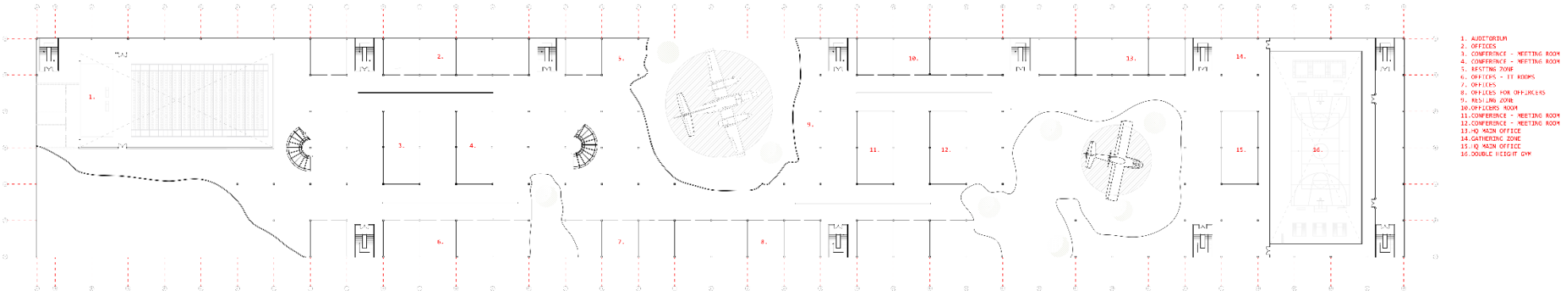
New proposed facades after changes and redevelopment. (Džiaugys, 2024)



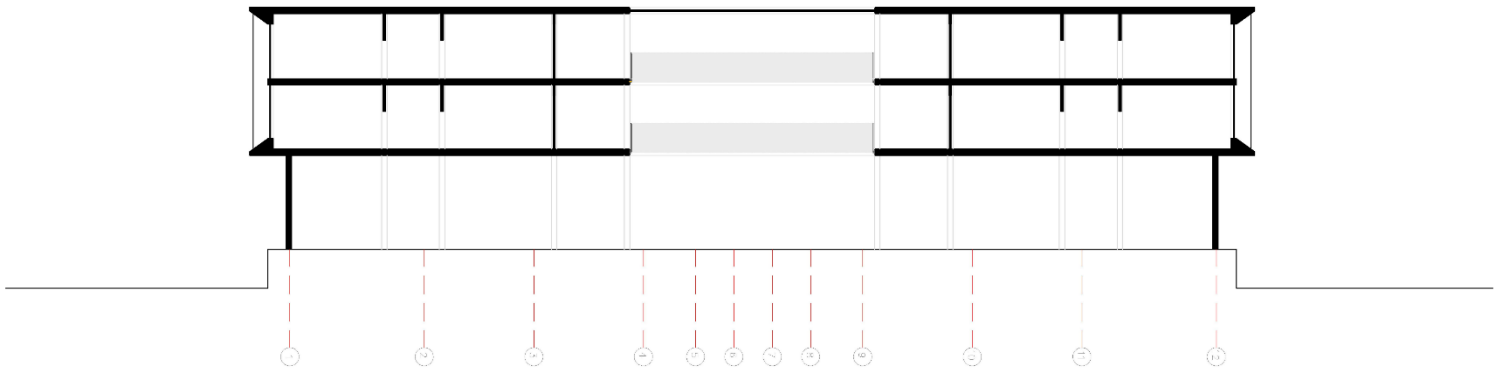
New proposed and redeveloped ground floor plan. (Džiaugys, 2024)



New proposed and redeveloped second floor plan. (Džiaugys, 2024)



New proposed and redeveloped third floor plan. (Džiaugys, 2024)

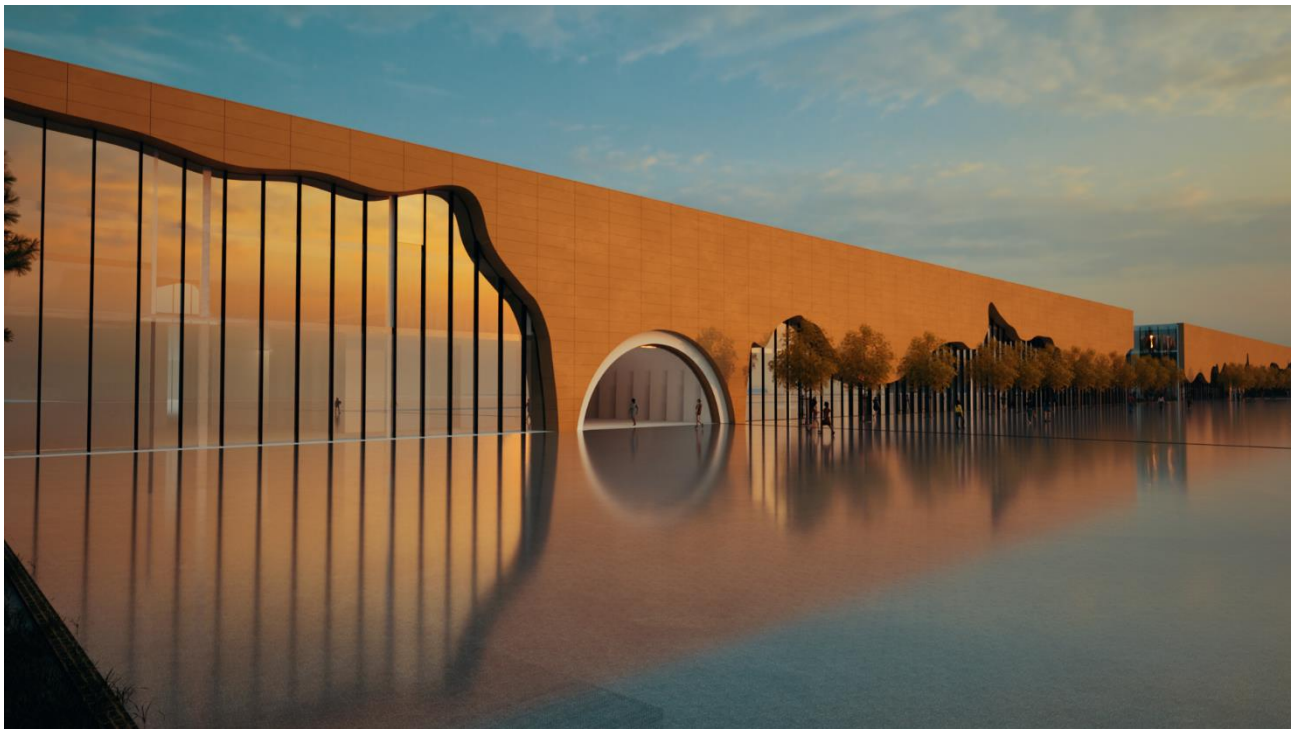


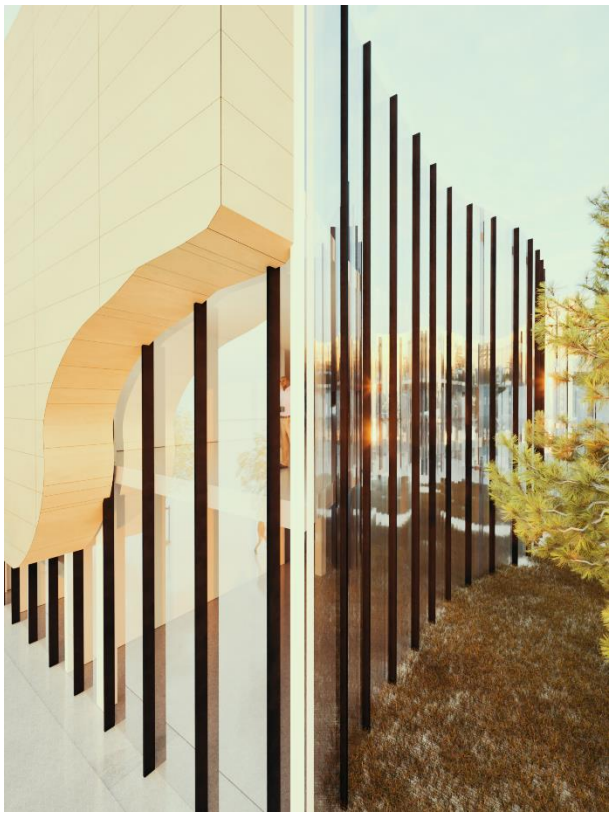
Section cut. (Džiaugys, 2024)

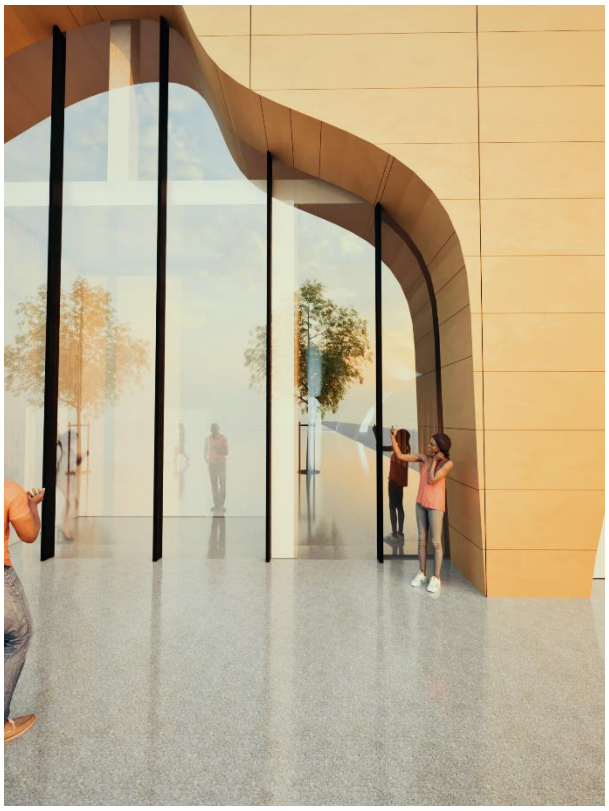
The proposed north façade before the changes. (Džiaugys, 2024)

The proposed south façade before the changes. (Džiaugys, 2024)

Appendix 7. Additional visualisations





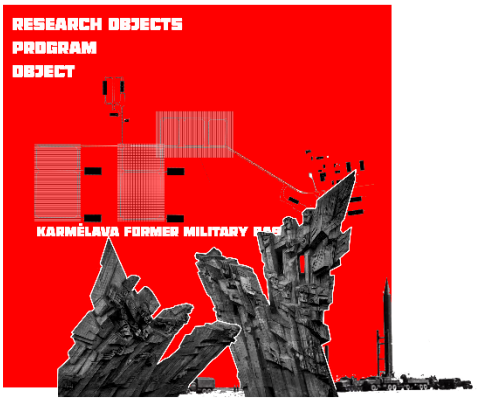


Appendix 8. Grapihcal part.

[DE]FACTO

THE ESSENCE OF THE 19X0 CONCEPT LIES IN ITS ABILITY TO HARNESS THE LATENT POTENTIAL WITHIN NEGLECTED RELICS. IT STANDS AS A BEACON OF POSSIBILITY, SHOWCASING HOW THE REMNANTS OF THE PAST CAN BE REPURPOSED INTO CATALYSTS FOR PROGRESS. BY BREATHING NEW LIFE INTO FORGOTTEN STRUCTURES.

19X0 EXEMPLIFIES THE TRANSFORMATIVE POWER OF VISIONARY DESIGN AND STRATEGIC REDEVELOPMENT. THE MAIN GOAL OF THIS EXPO IS TO REDEFINE THE NARRATIVE SURROUNDING HISTORICAL ARTIFACTS, PROVING THAT EVEN THE EVEN PLACES THAT BEAR THE SHADOW OF A DARK AND TROUBLED HISTORY CAN SERVE AS FOUNDATIONS FOR A BRIGHTER, MORE VIBRANT FUTURE.



[DE]JURE

THE FORMER MILITARY MISSILE BASE IN KARMĖLAVA IS A REMINDER OF THE OPPRESSIVE TIMES OF THE SOVIET UNION. LOCATED CLOSE TO STRATEGIC SITES OF PARTICULAR IMPORTANCE, CITIES AND DEEP IN DENSE FORESTS, IT STILL RETAINS ITS AURA OF MYSTERY, SHROUDED IN THE HISTORY OF THE BASE.

THE SUCCESSFUL DEVELOPMENT OF THE FORMER KARMĖLAVA MILITARY BASE AND THE UNLOCKING OF ITS POTENTIAL WOULD MARK A NEW STAGE IN THE POTENTIAL, GROWTH AND PROGRESS OF SUCH SITES, WHICH COULD BE USED AS A BASIS FOR THE DEVELOPMENT OF SITES OF THIS OR SIMILAR TYPES.

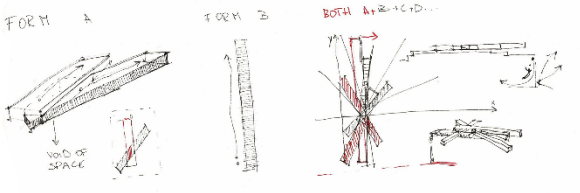
AIM

TO PREPARE A DEVELOPMENT PLAN AND FEASIBILITY STUDY FOR THE FORMER MILITARY MISSILE BASE SITE IN KARMĖLAVA, TO TEST THE GUIDELINES AND TO APPLY THE RESULTS OF EMPIRICAL AND THEORETICAL RESEARCH.

THE ESSENCE OF THIS WORK IS TO FIND OUT AND BETTER UNDERSTAND HOW USERS VALUE ARCHITECTURE, TO UNDERSTAND HOW IT CAN INFLUENCE THEIR DAILY CHOICES, TO STUDY IN MORE DEPTH THE PHYSICAL, EMOTIONAL AND BIOLOGICAL INDICATORS AND TO APPLY THEM IN THE DEVELOPMENT PROCESS, CREATING A STRATEGICALLY TARGETED FRAMEWORK FOR THE HUMANISATION OF THE FORMER MILITARY BASE IN KARMĖLAVA.

METHODOLOGY

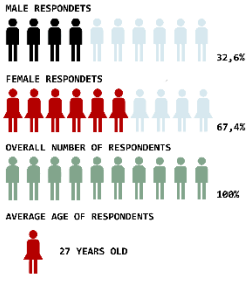
1. THEORETICAL RESEARCH : COLLECTION AND ANALYSIS OF THEORETICAL MATERIAL, SISTEMISATION AND FILTERING OF INFORMATION.
2. EMPIRICAL RESEARCH : SOCIOLOGICAL SURVEY, FOCUS GROUP RESEARCH, ANALYSIS AND COMPARISON OF ARCHITECTURAL ELEMENTS, RESEARCH ON ARCHITECTURAL FORM AND EXPRESSION BASED ON THE METHODS OF MANIPULATION OF FORMS, MOVEMENT OF LINES AND DECONSTRUCTION.
3. EXPERIMENTAL PROJECT : ADAPTING AND VALIDATING THE DESIGN GUIDELINES SET OUT.

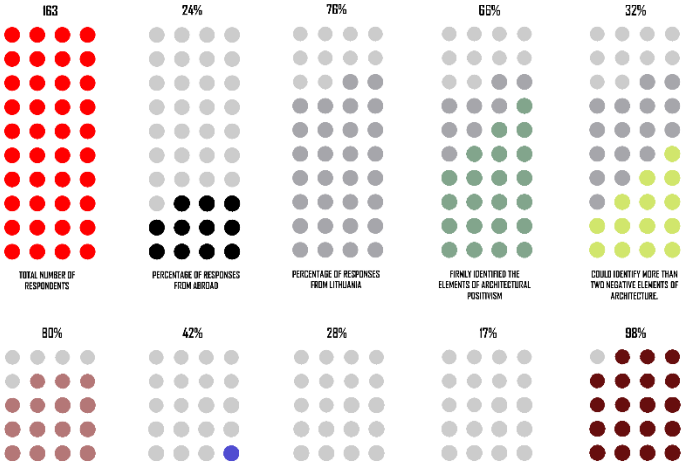


OVERVIEW AND SURVEY OF PARTICIPATION ACTIVITY

ALMOST 170 RESIDETS, PROFESSIONALS, STUDENTS, HISTORIANS AND OTHER PEOPLE RELATED TO ARCHITECTURE TOOK PART IN ONE OR ALL PARTS OF THE RESEARCH. MAIN FINDINGS ARE PRESENTED BELOW AND ON THE RIGHT SIDE. THE HUMAN PARTICIPATION WAS REALLY IMPORTANT THROUGH OUT THE RESEARCH AS IT GAVE NOT ONLY EMOTIONAL BACKGROUND OR EXPERIENCES THAT WERE BACKED UP BY EMOTION, BUT ALSO IT SUSTAINED AND HELPED TO ARGUE THEORETICAL MATERIAL, BASE EMPIRICAL RESEARCH AND EXPERIMENTAL RESEARCH FINDINSG THAT WERE LATER ON INTEGRATED INTO DESIGN PROCESS IN EXPERIMENTAL PROJECT PART.

ALL RESAERCHES DID NOT TAKE INTO ACCOUNT - PROFFESION, FINANCIAL POSITION, EXPERIENCE.





NR. 2

LITERRATURE REVIEW

THE FORMER MILITARY MISSILE BASE IN KARMĖLAVA IS A REMINDER OF THE OPPRESSIVE TIMES OF THE SOVIET UNION. LOCATED CLOSE TO STRATEGIC SITES OF PARTICULAR IMPORTANCE, CITIES AND DEEP IN DENSE FORESTS, IT STILL RETAINS ITS AURA OF MYSTERY, SHROUDED IN THE HISTORY OF THE BASE.

THE SUCCESSFUL DEVELOPMENT OF THE FORMER KARMĖLAVA MILITARY BASE AND THE UNLOCKING OF ITS POTENTIAL WOULD MARK A NEW STAGE IN THE POTENTIAL, GROWTH AND PROGRESS OF SUCH SITES, WHICH COULD BE USED AS A BASIS FOR THE DEVELOPMENT OF SITES OF THIS OR SIMILAR TYPES.

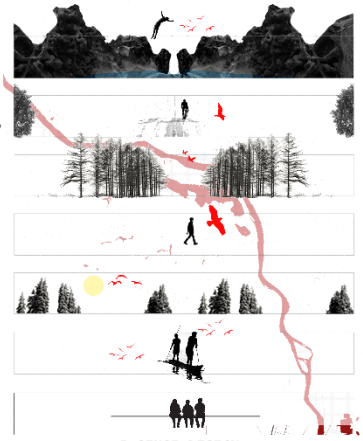
5 SENSE DESIGN

ONE OF THE MOST IMPORTANT THEORETICAL RESEARCH FINGINS WAS THAT BY INCPORPORATING 5 SENSES INTO ARCHITECTURE OR ABILITY TO FEEL 5 SENSES, IT IS MORE LIKELY FOR PROJECT TO BE MORE SUCCESSFUL IN A LONG RUN OR EVEN FOR THE PROJECT TO SUSTAIN HUMAN LIFE PRINCIPLES ON METAPHYSICAL LEVEL.

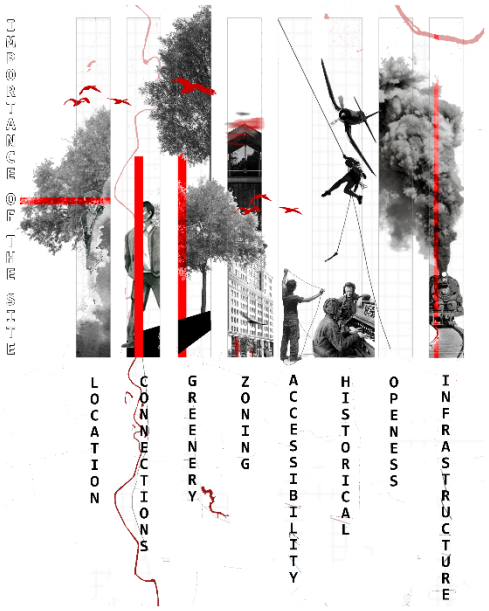
THIS MEANS THAT ALL OF OUR 5 AVAILABLE HUMAN SENSES CAN WORK TOGETHER TO CREATE WHOLE OF EXPERIENCES. IF TO FOLLOW THIS LOGIC ARCHITECTURE IS HIGHLY IMPACTED BY THESE FACTORS AND THEIR REQUIREMENTS OF FULFILLMENT.

IT INSTANTLY GENERATES GUIDELINES THAT HAVE TO BE FOLLOWED IN ORDER TO ACHIEVE MAXIMUM POSSIBLE RESULTS IN DESIGN.

EVEN THOUGH IT IS HARD TO ACHIEVE ALL 5 AT THE SAME TIME, IT IS STILL POSSIBLE TO TRY TO ACHIEVE RESULT THAT IS DESIRED.

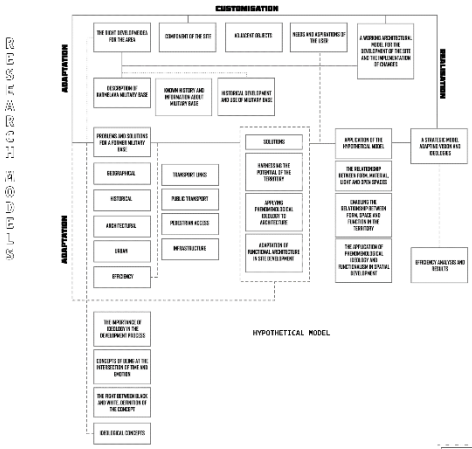


5 SENSE DESIGN

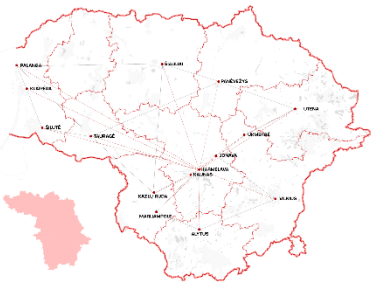


RESEARCH MODELS

HYPOTHETICAL AND CONCEPTUAL MODELS CAME FROM DIFFERENT STAGES OF RESEARCH, HYPOTHETICAL MODEL WAS GENERATED FROM THE RESULTS OF THEORECIAL RESEARCH WHILE CONCEPTUAL MODEL WAS GENERATED FROM CONCEPTUAL MODEL + EMPIRICAL RESEARCH AND IT'S RESULTS, AT THE SAME TIME IT IS WORTH MENTIONING NEITHER OF STUDY MODELS DID NOT SUSTAIN CHANGES AND DEVELOPMENT, THATS WHY THROUGH OUT THE RESEARCH BOTH MODELS WERE SAID TO BE INCONCLUSIVE AND NON-VALID, WHILE PORTIONS OF WORKING ASPECTS WERE SELECTED AND COMBINED INTO ONE AND MAIN NOT MODEL TYPE OBJECTIVES.



HYPOTHETICAL MODEL

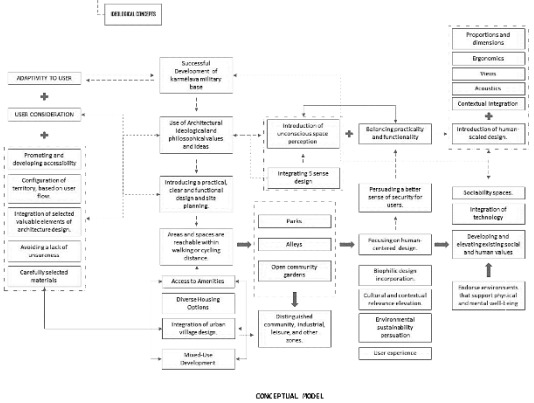


ALL OF THE CITIES WERE ONE OR MORE MILITARY INFRASTRUCTURE OBJECTS ARE PRESENT

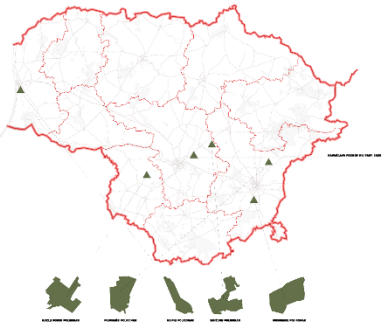
LITERATURE ANALYSIS

THE LITERATURE ANALYSIS INCLUDED NOT ONLY THE COLLECTION OF THEORETICAL MATERIAL ON ARCHITECTURE AND ARCHITECTURAL IDEOLOGY, BUT ALSO THE IMPORTANCE OF THE ARMY AND MILITARY IDEOLOGIES, AND THE IMPORTANCE OF ARCHITECTURE IN HUMAN LIFE. A WEALTH OF USEFUL INFORMATION WAS FOUND ON THE KARMĖLAVA MILITARY BASE AND ITS FUNCTIONING, AS WELL AS INFORMATION ON THE LITHUANIAN ARMY SYSTEM AND HOW THIS TYPE OF DEVELOPMENT COULD CONTRIBUTE TO THE CURRENT ARMY AND ITS REQUIREMENTS.

ALSO, ONE OF THE MOST IMPORTANT HIGHLIGHTS OF THE THEORETICAL ANALYSIS WAS TO CLARIFY THE COLLATION OF MILITARY IDEOLOGY AND ARCHITECTURAL IDEOLOGY, WHICH COULD LEAD TO ONE OR THE OTHER CHANGE, A CHANGE OF ZONES OF INFLUENCE.



CONCEPTUAL MODEL



MAJOR TRAINING GROUNDS IN LITHUANIA AT THE MOMENT.

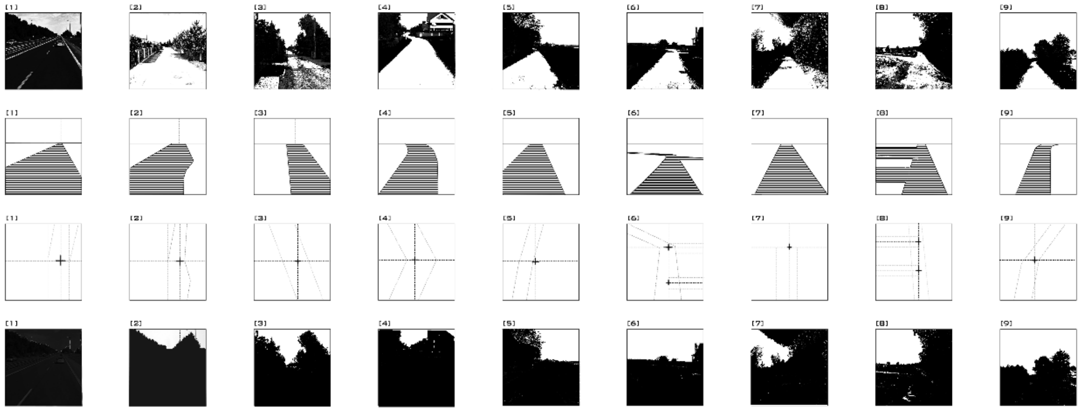
TRAINING GROUNDS

THE LITERATURE ANALYSIS ALSO IDENTIFIED THE 5 LARGEST POLYGONS CURRENTLY EXISTING IN LITHUANIA AND THEIR TERRITORIES, OPERATING PRINCIPLES, BUILDINGS, LENGTHS AND WIDTHS, AS WELL AS THE RESPECTIVE FUNCTIONS OF EACH AND EVERY POLYGON AND THE TYPE OF TROOPS CHARACTERISTIC OF THAT AREA.

THE RELEVANT TYPE OF INFRASTRUCTURE NEEDED TO BENEFIT THE LITHUANIAN ARMED FORCES IN TERMS OF FUTURE DEVELOPMENT OPPORTUNITIES AND EXPECTATIONS WAS ALSO IDENTIFIED.

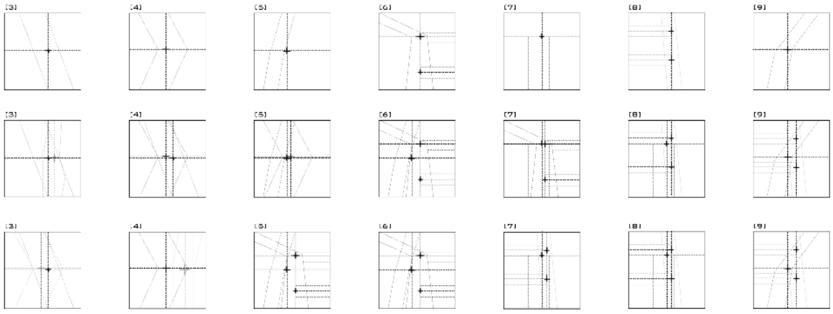
EMPIRICAL AND ADDITIONAL RESEARCH

NR. 3

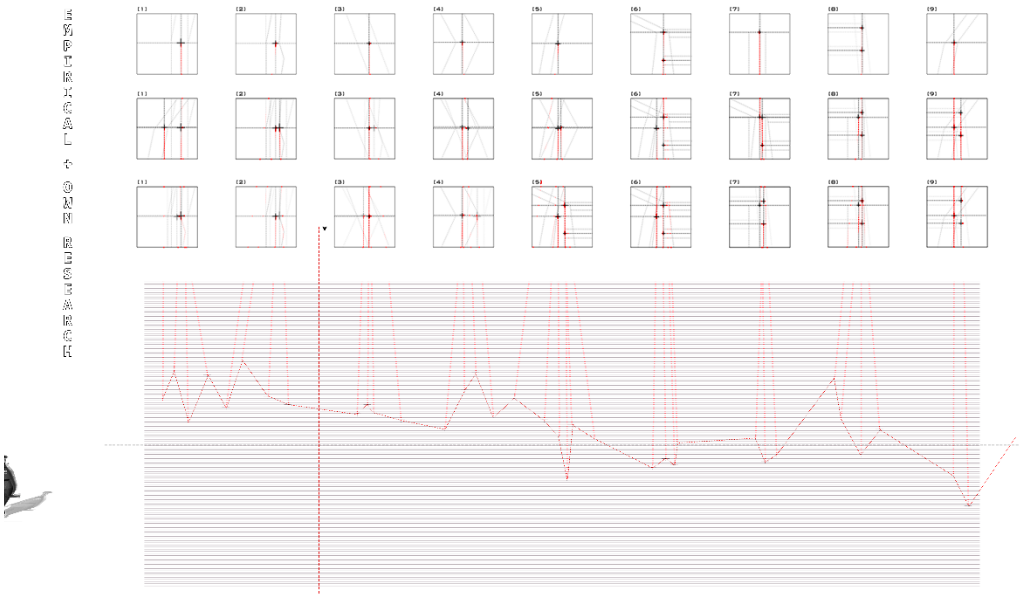


EXPRESSION THOURGH LINES

PHOTOGRAPHS OF NINE DIFFERENT BUT CONSECUTIVE SECTIONS OF ROAD FROM WHICH INFORMATION OF RELEVANCE WAS EXTRACTED TO START AND CONTINUE THE RESEARCH.
A PORTION OF EACH PHOTOGRAPH WAS CONVERTED INTO A BLACK AND WHITE SILHOUETTE TO IDENTIFY AND DELINEATE THE ROAD SECTIONS, WHILE AT THE SAME TIME, THE DELINEATED PORTION OF THE ROAD SECTION WAS TRANSLATED INTO A PLAN VIEW RENDERED ON THE X AND Y AXES.
THE LINES ON THE AXES WERE USED IN THE SHAPE MANIPULATION STAGE OF THE SUBSEQUENT STUDY, WHICH ALSO WAS USED IN LATER STAGES OF TRANSFERING 2D INTO 3D SHAPES.



EMPIRICAL + OWN RESEARCH



BEGGINING OF CALCULATIONS

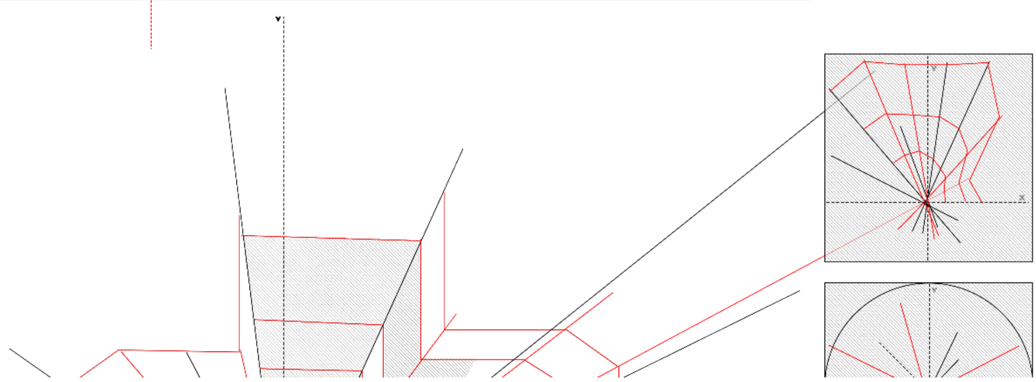
THE EXPRESSION OF THE VALUES ON THE AXES IS CONVEYED THROUGH THE DIRECT NUMBER OF INTERSECTIONS, DENOTED AS N, IN THE TRANSFORMED PLAN VIEWS. EACH POINT IS ASSIGNED DEFAULT A VALUE OF 1, INDICATING ITS SIGNIFICANCE WITHIN THE DESIGN CONTEXT. HOWEVER, AT THE POINTS OF INTERSECTION, THE ASSIGNED VALUE IS DETERMINED BASED ON SPECIFIC CONDITIONS

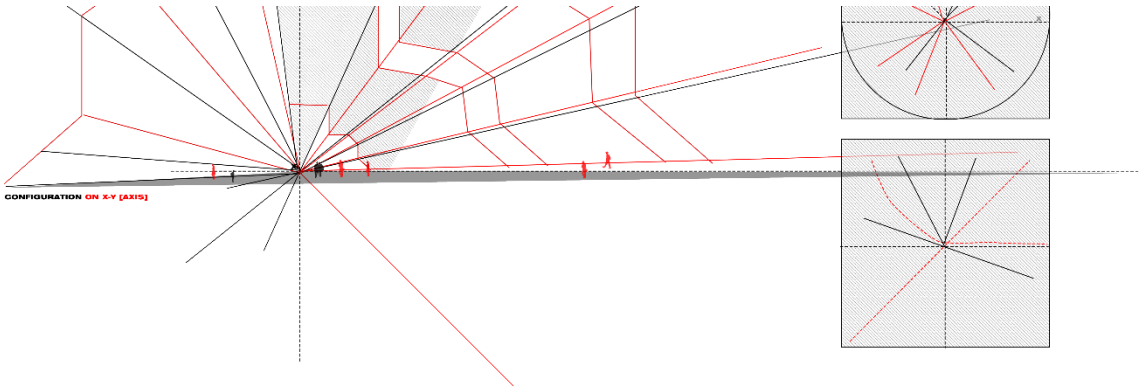
MATHEMATICALLY, THE VALUE ASSIGNED TO EACH INTERSECTION POINT, RESEMBLED AS VXY, IS DETERMINED BY THE FOLLOWING CONDITIONS:

1. IF THE INTERSECTION OCCURS WITHOUT CONSTRAINTS SUCH AS ALIGNMENT ON THE SAME PLANE AND AXIS, THE VALUE REMAINS POSITIVE, REPRESENTED AS N = +1. THIS SUGGESTS A POSITIVE CONNECTIONS OR INTEGRATION BETWEEN DESIGN ELEMENTS.

2. IF THE POINTS INTERSECT IN ONE PLANE AND ON ONE AXIS, THE VALUE BECOMES NEGATIVE, REPRESENTED AS N = -N, WHICH SIGNIFIES A DEVIATION WITHIN THE DESIRED POINTS.

ALSO, ALL POINTS HAVE COORDINATES AND RESPECTED VALUES AND ARE USED TO CALCULATE THE VALUE (C) $C = \Sigma VXY$.
THEREFORE, C IS SUM OF ALL VALUES, AND VXY IS A VALUE ASSIGNED TO INTERSECTION POINT



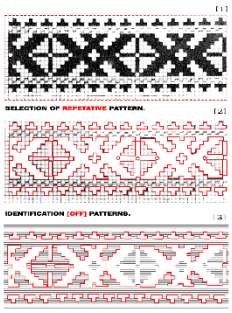


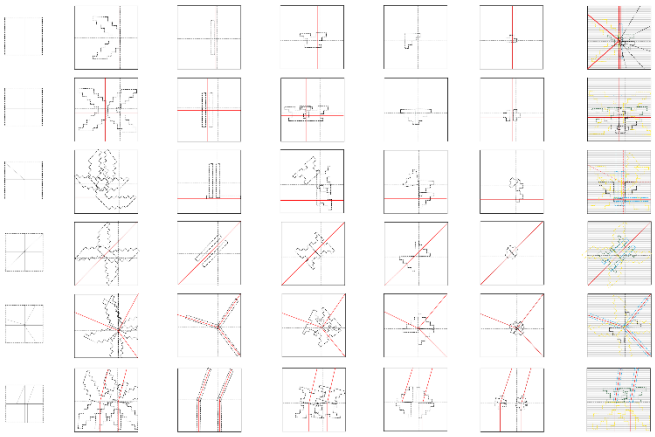
DEEPENING RESEARCH WITH ADDITIONAL PATTERNS

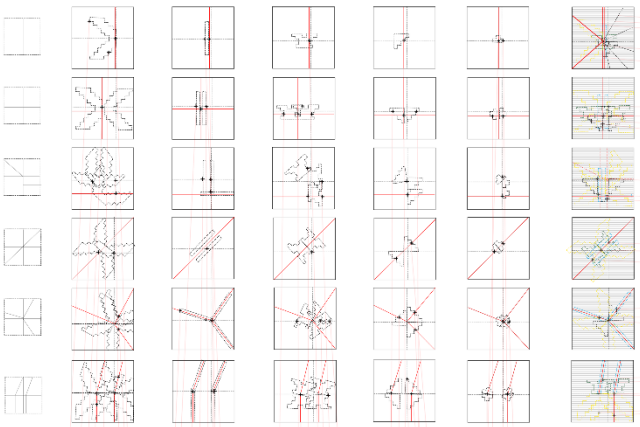
A FRAGMENT OF THE FOLK PATTERN (1) WAS SELECTED FOR THE STUDY, AND THE SHAPES AND FRAGMENTS TO WHICH THE SHAPE GRAMMAR SHAPE MANIPULATION AND DYNAMICS CHANGE METHOD (2) WILL BE APPLIED ARE IDENTIFIED, AND IN THE LAST STAGE (3), ADDITIONAL AND EXCESSIVE OR UNNECESSARY INFORMATION IS REMOVED FROM THE PATTERN, SUCH AS COLOURS, SHADING, ADDITIONAL OR NON-REPEATING PATTERNS.

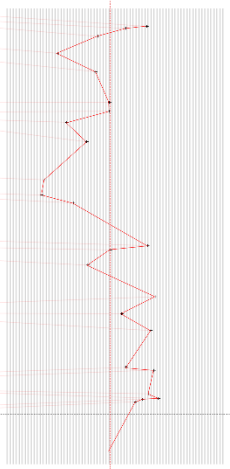
IN ORDER TO MAKE THE STUDY MEANINGFUL AND TO CHANGE THE DYNAMICS OF THE SHAPES IN THE CORRECT WAY, THE MOST RECURRENT RESULTS AND DIAGRAMS FROM THE FIRST PART OF THE STUDY WERE SELECTED FROM THE MOST RECURRENT MANIPULATION OF THE PLAN VIEW AND LINEAR MOTION. BASED ON THE SELECTED INFORMATION, THE FRAGMENTS OF THE NATIONAL PATTERN WERE COMBINED WITH EACH OTHER, REGARDLESS OF THE WIDTH, SIZE AND DYNAMICS OF THE SHAPES. AS STINY (2006) PUTS IT, THE VARIABLES X AND Y CAN HAVE COMPLETELY DIFFERENT VALUES AND PARAMETERS, BUT AT THE SAME TIME IT IS SUFFICIENT FOR THE VARIABLES X AND Y TO BE SHAPES.

[DE] CONSTRUCTION [OFF] LINE MOVEMENTS FROM LITHUANIAN FOLK PATTERNS





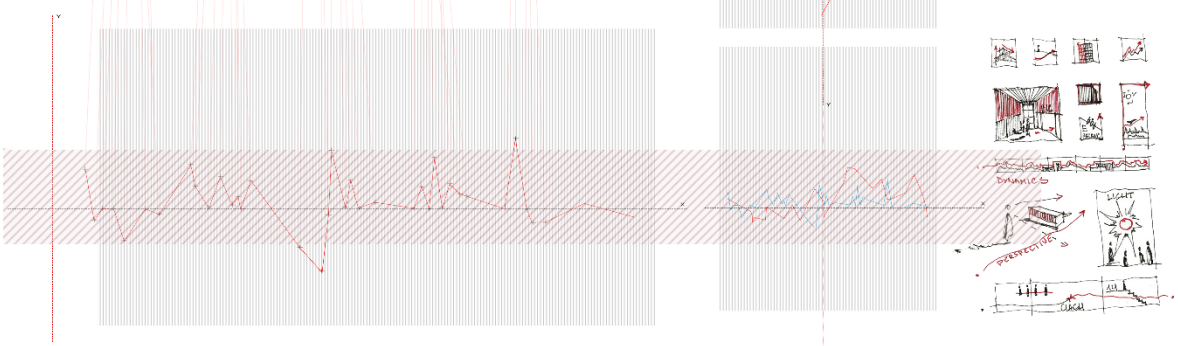




FURTHER CALCULATIONS

THE SAME THEORETICAL AND PRACTICAL APPROACH IS APPLIED BY EXTRACTING THE VALUES AND EVALUATING THE INTERSECTION POINTS OF THE SHAPES WITH MATHEMATICAL VALUES IN ORDER TO MAP THEM ONTO THE X AND Y AXES, AN APPROACH THAT HAS PROVIDED ADDITIONAL INFORMATION IN THE STUDY ON THE APPLICABILITY OF THE SHAPES AND THE VALIDITY OF THE METHOD TO THE RESEARCH PROCESS.
IN THE SAME WAY AS IN PREVIOUS EXPERIMENT, THE RESULTS OBTAINED ON THE AXES WERE SUPERIMPOSED ON A SINGLE PLANE ON THE X AND Y AXES IN ORDER TO EVALUATE THE RESULTS AND TO TRANSLATE THEM INTO A THREE-DIMENSIONAL SPACE, WITH THE POSITIVE AND NEGATIVE ASPECTS OF THE STUDY BEING EVALUATED IN THE SAME WAY.

THESE VALUES WERE LATER USED AS A BASE FOR OCS (OVERALL COHERENCE SCORE) AND TO DETERMINE THE SHAPE VALIDITY IN RELATION TO DESIGN STAGE.



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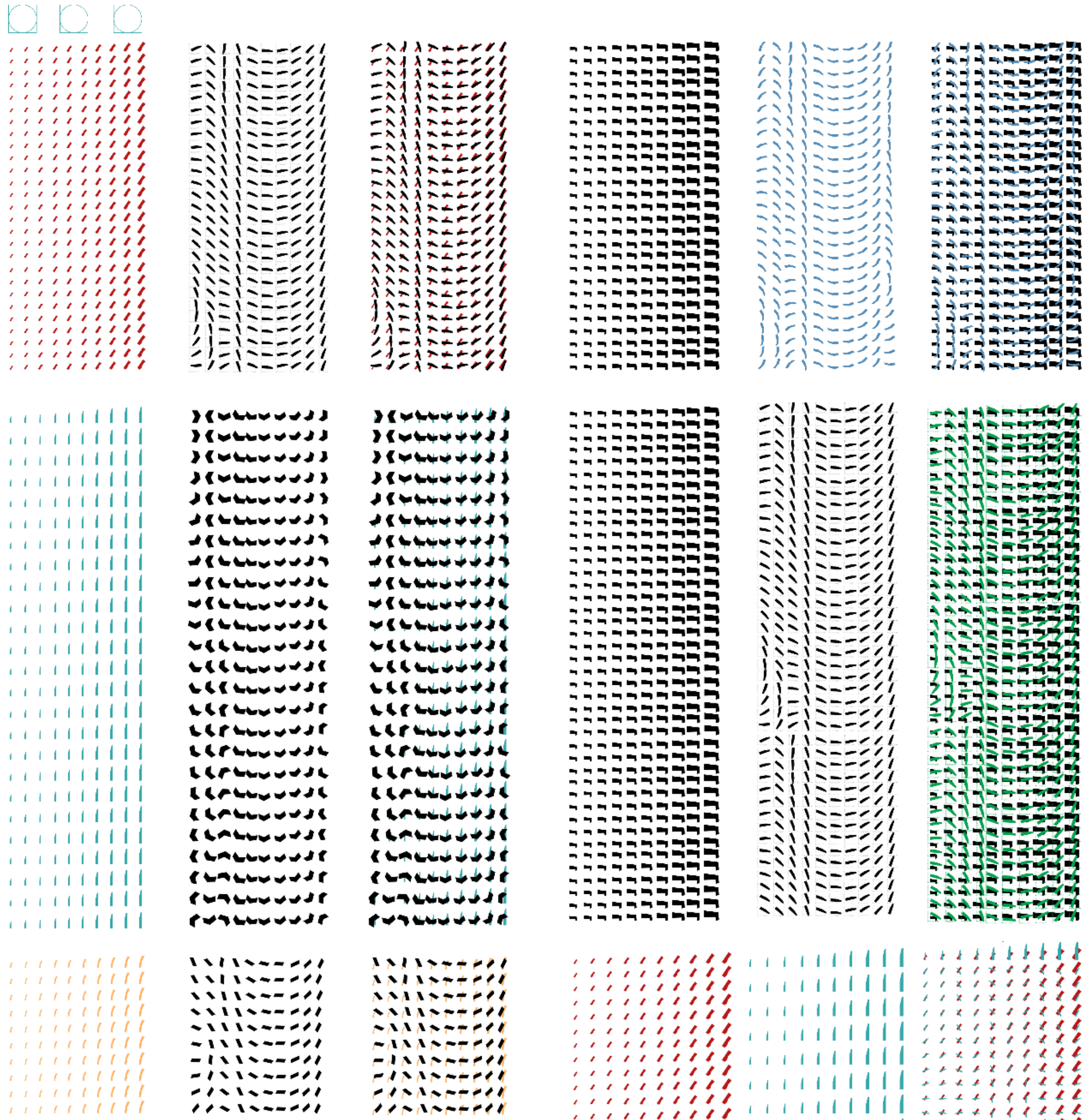
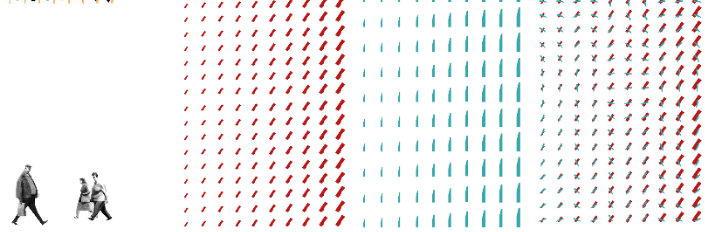
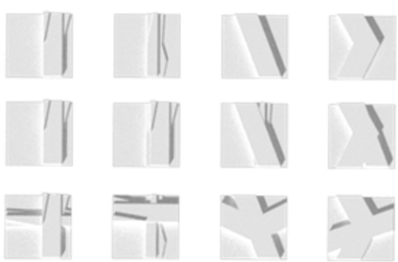




PAMETRIC[S] TESTING

AFTER THE FIRST RESULTS OF THE STUDY, TO FURTHER REFINE THE SUITABILITY OF THE SHAPES, IT WAS CHOSEN TO CARRY OUT A STUDY ON PARAMETRIC MOVEMENTS AND CHANGE OF FUNCTION, SELECTING THE SHAPES WITH THE HIGHEST (OCS) FROM THE STUDY AS WELL AS THE SHAPES THAT WERE CONSIDERED TO HAVE THE MOST POTENTIAL TO BE APPLIED IN THE DESIGN.

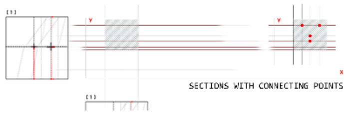
EACH SHAPE WAS SCALED DOWN FROM THE SMALLEST TO THE LARGEST POSSIBLE SHAPE, CHANGING THE DEGREE AND DIRECTION OF MOVEMENT TO FIND THE POTENTIAL OF THE CORRESPONDING SHAPES AND THE POTENTIAL NEW SPACES FORMED, HERE THE SELECTED SHAPES ARE PRESENTED, BUT THE STUDY WAS CARRIED OUT ON ALL 27 SHAPES OBTAINED.



36 SHAPES OBTAINED

WHY OCS AND HOW OCS IS CALCULATED.

OSC (OVERALL COHERENCE SCORE) IS A EVALUATOR WHICH IS BASED ON MATHEMATICAL CALCULATIONS AND THEORETICAL GROUNDS, IT LET'S US TO COMPOSE MORE ACCURATE RESULTS RATHER THAN ONES BASED ONLY ON THEORETICAL GROUNDS. FOR OSC TO WORK



SECTIONS WITH CONNECTING POINTS

POINTS :
•POINT ONE: (2,3), (4,5), (6,7)
•POINT TWO: (4,5), (6,7)
•POINT THREE: (6,7)

EXAMPLE EVALUATION OF TWO RANDOMLY SELECTED TRANFORMATIONS:

TRANSFORMATION 1:

•CPOSITIVE = 20
•CTOTAL = 30
•OCS = 20/30 * 100% = 66,67%

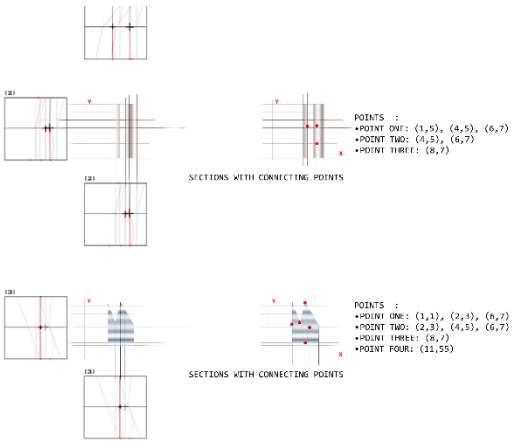
CONDITIONS HAVE TO BE SET OUT AND APPLIED.

THE CONDITIONS CREATED ARE APPLIED TO ENSURE ACCURATE ALIGNMENT OF POINTS AND SHAPES:

1. POSITIVE COHERENCE:
• IF OCS > 50%, THE TRANSFORMATION IS CONSIDERED TO HAVE POSITIVE COHERENCE. WHICH RESULT IN HIGHER VALUES INDICATING A BETTER COHERENCE.
2. NEGATIVE COHERENCE:
• IF OCS < 50%, THE TRANSFORMATION IS CONSIDERED TO HAVE NEGATIVE COHERENCE. LOWER VALUES INDICATE A POORER COHERENCE.
3. NEUTRAL COHERENCE:
• IF OCS = 50%, THE TRANSFORMATION IS CONSIDERED NEUTRAL, WITH EN EQUAL DISTRIBUTION OF POSITIVE AND NEGATIVE VALUES.

IN ORDER TO JUSTIFY CONDITIONS ADDITIONAL CALCULATION FORMULAS OF INTERSECTION VALUES (C) HAVE TO BE INTEGRATED INTO PROCESS:
1. CALCULATION OF INTERSECTION VALUES (C):
– AS PREVIOUSLY DESCRIBED: C = ΣVXY
– WHERE C IS THE SUM OF ALL VALUES, AND VXY IS THE VALUE ASSIGNED TO EACH INTERSECTION POINT.
2. OVERALL COHERENCE SCORE (OCS):
– OCS = C POSITIVE / C TOTAL * 100%
– WHERE C POSITIVE IS THE SUM OF POSITIVE INTERSECTION VALUES, C TOTAL IS THE TOTAL SUM OF INTERSECTION VALUES.

GROUPING IS ALSO BASED ON DIRECT COHERENCE SCORES AND CAN BE DESCRIBED AS:
1. HIGH COHERENCE GROUP: TRANSFORMATIONS WITH OCS > 75%
2. MODERATE COHERENCE GROUP: TRANSFORMATIONS WITH 50% ≤ OCS ≤ 75%
3. LOW COHERENCE GROUP: TRANFORMATIONS WITH OCS < 50%



(MODERATE COHERENCE)

TRANFORMATION 2:

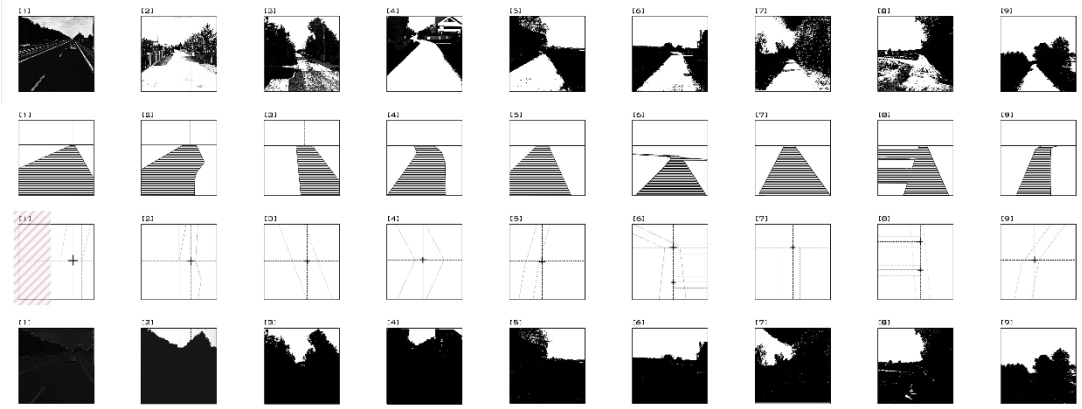
•CPOSITIVE = 4
•CTOTAL = 14
•OCS = 4/14 * 100% = 28,57%
(LOW COHERANCE)

TRANSFORMATION 3:

•CPOSITIVE = 23
•CTOTAL = 30
•OCS = 23/30 * 100% = 76,66%
(HIGH COHERANCE)

Transformation	Value	Group
1	76,66%	High coherence
2	65,54%	Moderate coherence
3	62,24%	Moderate coherence
4	57,07%	Moderate coherence
5	94,74%	Moderate coherence
6	90,07%	Moderate coherence
7	41,07%	Low coherence
8	90,05%	Moderate coherence
9	61,11%	Moderate coherence
10	45,97%	Low coherence
11	62,03%	Moderate coherence
12	65,97%	Moderate coherence
13	80,42%	Moderate coherence
14	62,91%	Moderate coherence
15	61,54%	Moderate coherence
16	90,11%	Moderate coherence
17	65,97%	Moderate coherence
18	86,3%	Moderate coherence
19	68,27%	Moderate coherence
20	63,55%	Moderate coherence
21	63,54%	Moderate coherence
22	66,07%	Moderate coherence
23	80,94%	Moderate coherence
24	90,27%	Moderate coherence
25	63,54%	Moderate coherence

RESULTS OF CALCULATIONS AND COHERENCE SCORES.



BACK TO SQUA

DURING THE COURSE
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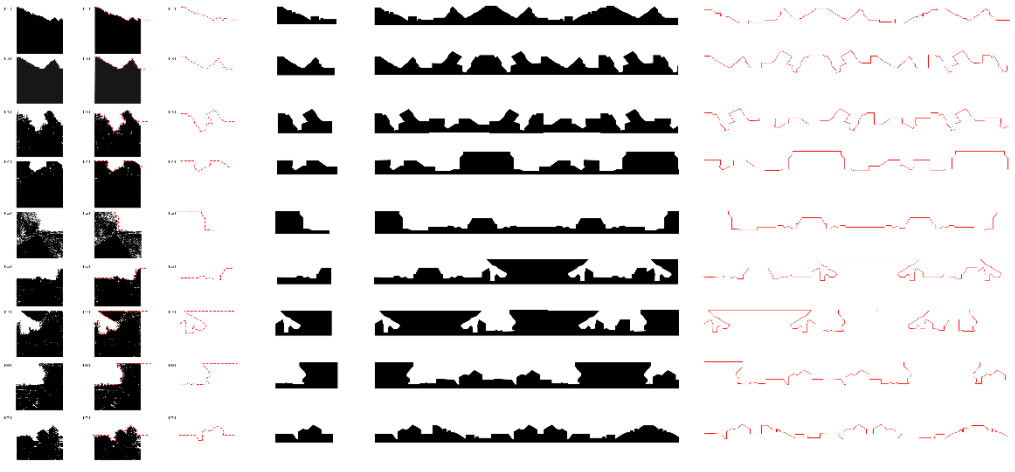


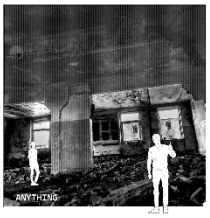
SILHOUETTES THAT FORM LANDSCAPE

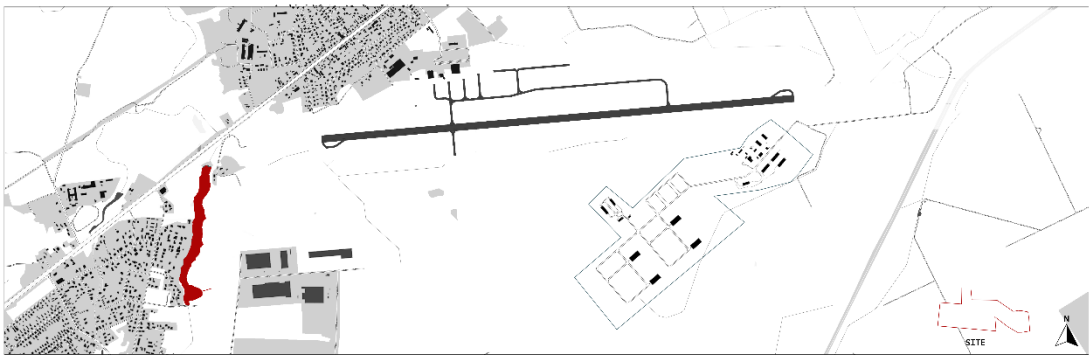
BACK TO SQUARE ONE

DURING THE COURSE OF THE STUDIES, IT WAS DECIDED TO GO BACK TO THE ORIGINAL EMPIRICAL AND COMPLEMENTARY STUDIES AND RE-EVALUATE THE DATA AT THE START OF THE STUDY.

AFTER EVALUATING THE AVAILABLE INFORMATION AND THE RESULTS, IT WAS DECIDED THAT EMOTION COMES FROM THE SILHOUETTES OF THE SELECTED ROAD SECTIONS, BUT ALSO THAT IT CAN BE TRANSLATED DIRECTLY INTO ARCHITECTURE THROUGH THE MOVEMENT AND INTERSECTIONS OF LINES, WHERE CHAOS ENVELOPS THE ORDERLINESS AND THE CLEAR RHYTHM, BUT AT THE SAME TIME, THESE TWO FORCES CREATE A SPECIAL INTERCONNECTEDNESS THAT GENERATES A LARGE NUMBER OF DIFFERENT POSSIBLE ARCHITECTURAL TYPES AND POSSIBILITIES.

SILHOUETTES TO DESIGN

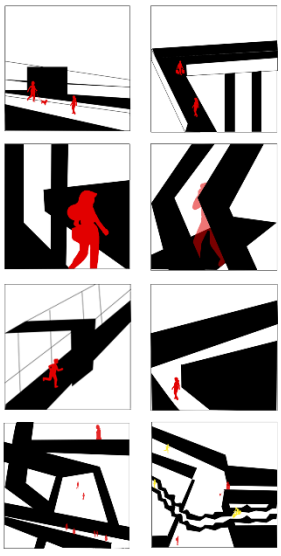




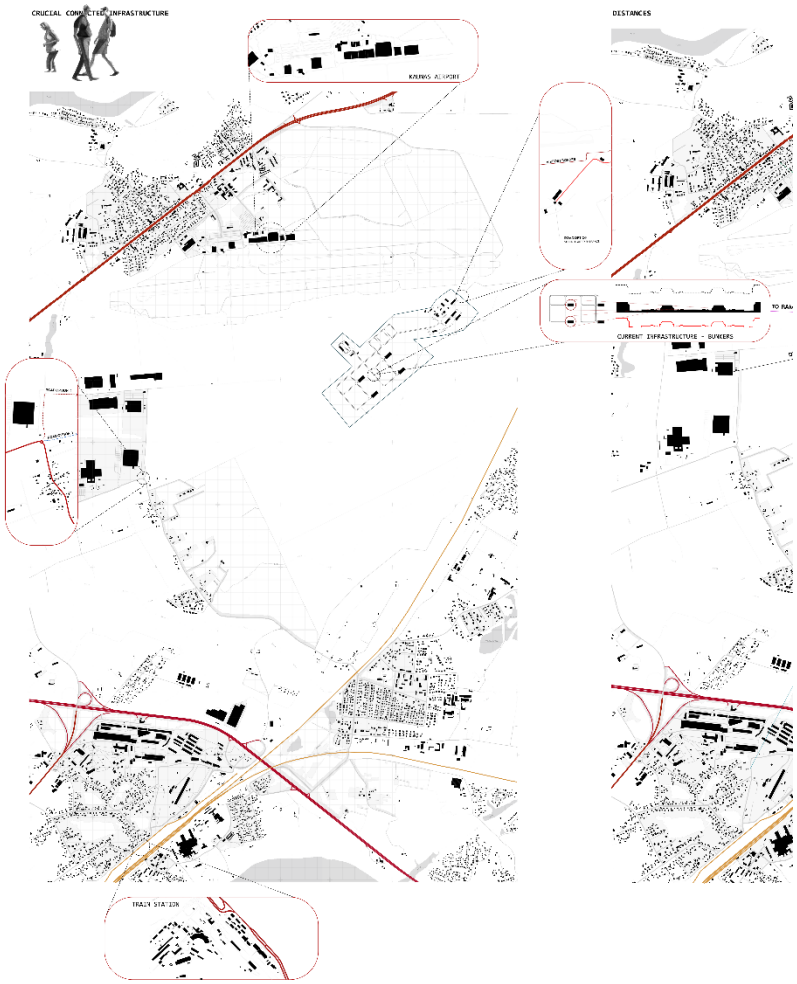
INK 4

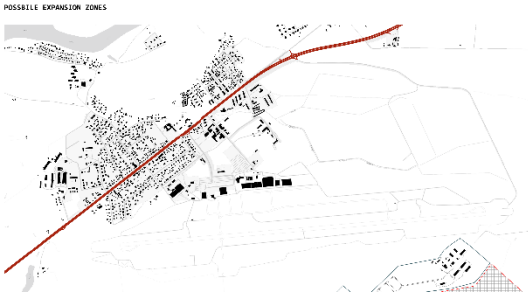
PARAMETRICS AND MAPS

THE PARAMETRIC ANALYSIS WAS NOT ONLY FOCUSED ON CHANGING AND MANIPULATING FORMS AND TRACKING CHANGE, BUT WAS VERY MUCH CONCERNED WITH THE SITUATION AND ITS ANALYSIS, WITH ADDITIONAL SITUATIONAL ADAPTATION TESTS IN EACH STUDY, WHICH WERE EXPECTED TO PROVIDE MEANINGFUL INFORMATION ABOUT HOW ONE OR OTHER ARCHITECTURAL SOLUTION MIGHT OR SHOULD WORK. AS A RESULT, IT WAS FOUND THAT THE FUNCTIONAL SIGNIFICANCE OF ONE BUILDING CAN DETERMINE THE DIRECTION OF ALL THE OTHER BUILDINGS IN THE VICINITY, SO THAT IT DOES NOT MATTER AT ALL WHAT THE FUNCTION OF THE BUILDING IS, AS LONG AS IT WORKS IN THE OVERALL COMPOSITION, ADAPTATION OF THE FUNCTION CAN BE A SECONDARY POSITION. HOWEVER, IT IS IMPORTANT TO NOTE THAT THIS HYPOTHESIS IS NOT VALIDATED AND CANNOT BE USED IN OTHER PROJECTS.



ANALYSIS ON HOW CLASH AND CHAOS CAN CREATE SPACES.





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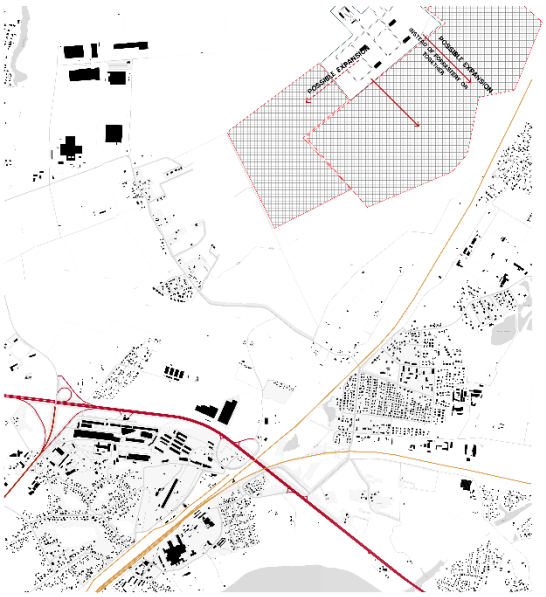
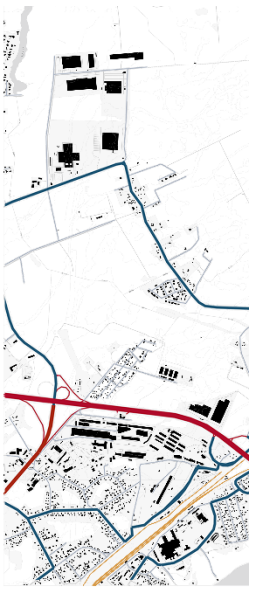
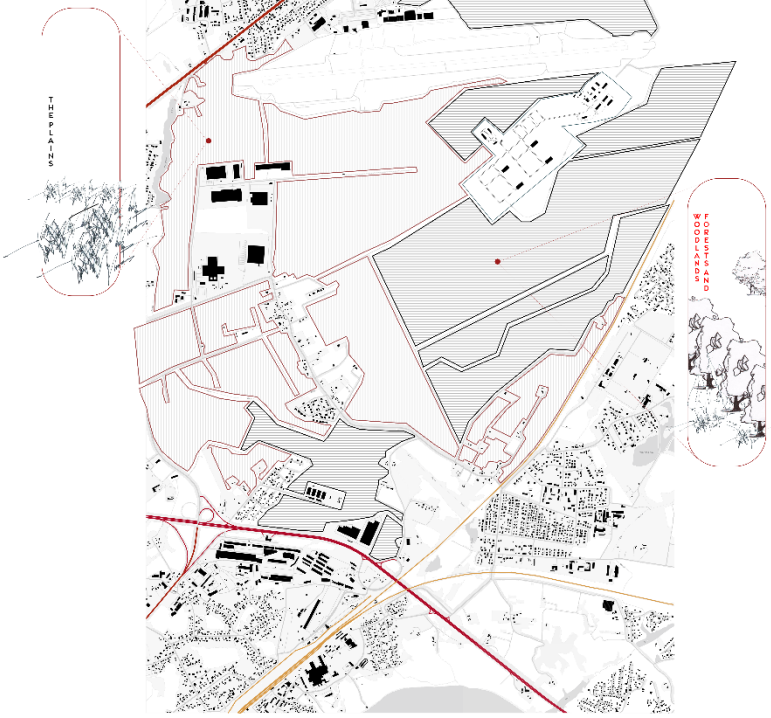
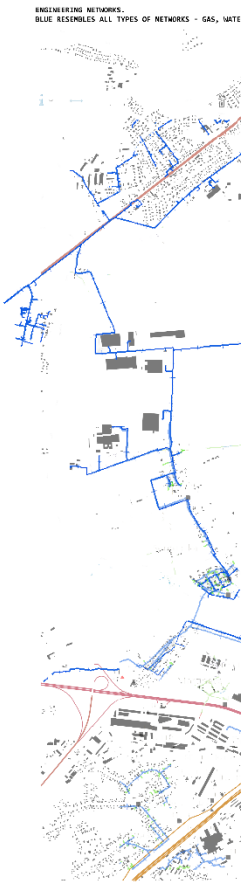






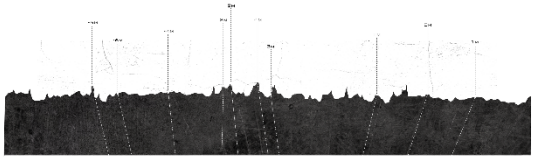


NR. 6

MAP TESTING

MAP TESTING WAS ONE OF MOST IMPORTANT PARTS OF THE RESEARCH, AFTER GATHERING RESULTS AND FILTERING IMPORTANT INFORMATION IT WAS TIME TO DEEPLY ANALYSE THE SITE AND ITS SURROUNDINGS BECAUSE OF SITES IMPORTANCE TO THE REGION AND SURROUNDING CITIES.

AT THE SAME TIME IT WAS NOT ONLY IMPORTANT TO DETERMINE THE PLACES AND INFRASTRUCTURE BUT TO SEE HOW ALL OBJECTS ARE CONNECTING WITH EACH OTHER, WHAT RELATIONSHIP ONE OR ANOTHER ELEMENT HAS WITH ITS CONNECTING POINTS, WHAT CHANGES CAN BE MADE AND ETC.

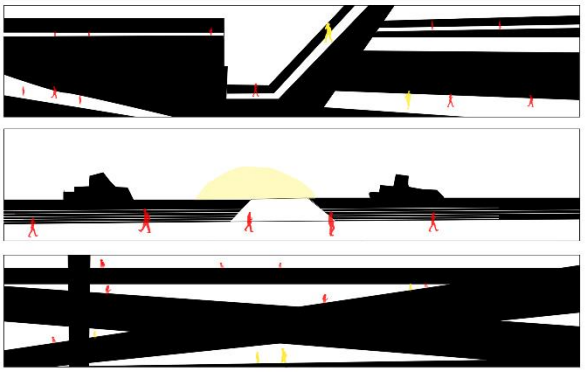


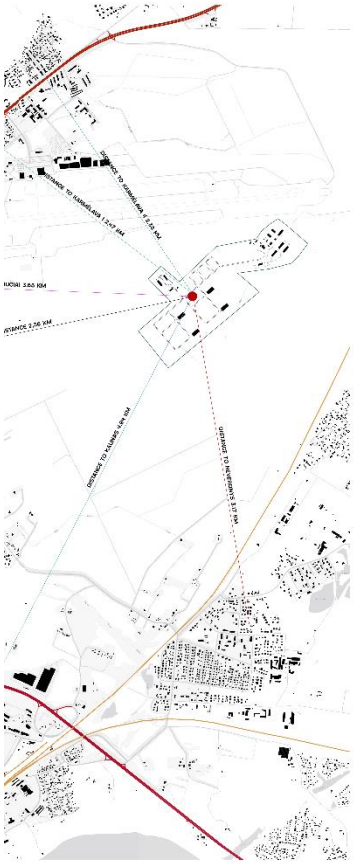
NR. 3

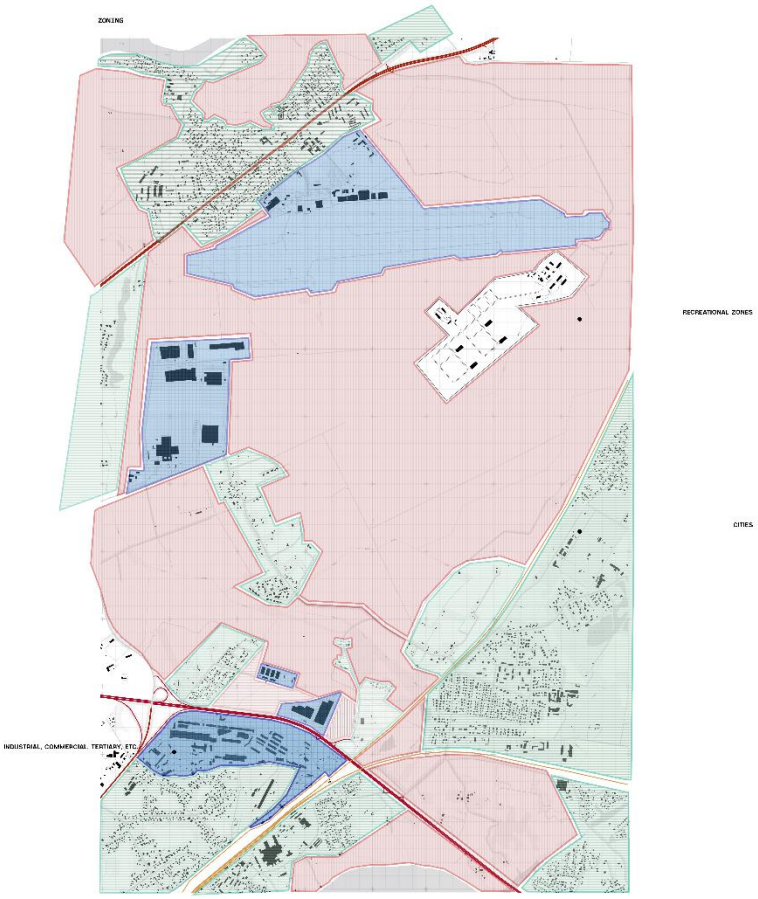
MAP TESTING

THE FORMER MILITARY MISSILE BASE IN KARMĖLAVA IS A REMINDER OF THE OPPRESSIVE TIMES OF THE SOVIET UNION. LOCATED CLOSE TO STRATEGIC SITES OF PARTICULAR IMPORTANCE, CITIES AND DEEP IN DENSE FORESTS, IT STILL RETAINS ITS AURA OF MYSTERY, SHROUDED IN THE HISTORY OF THE BASE.

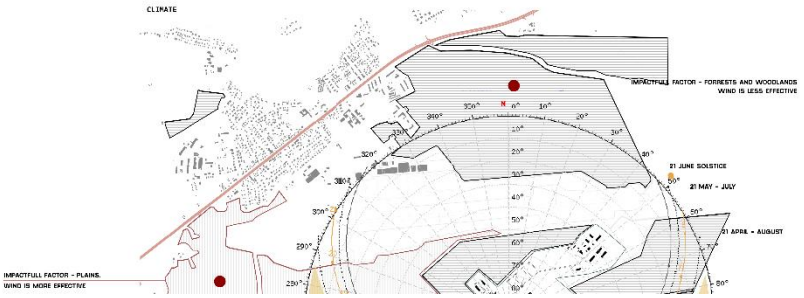
THE SUCCESSFUL DEVELOPMENT OF THE FORMER KARMĖLAVA MILITARY BASE AND THE UNLOCKING OF ITS POTENTIAL WOULD MARK A NEW STAGE IN THE POTENTIAL, GROWTH AND PROGRESS OF SUCH SITES, WHICH COULD BE USED AS A BASIS FOR THE DEVELOPMENT OF SITES OF THIS OR SIMILAR TYPES.

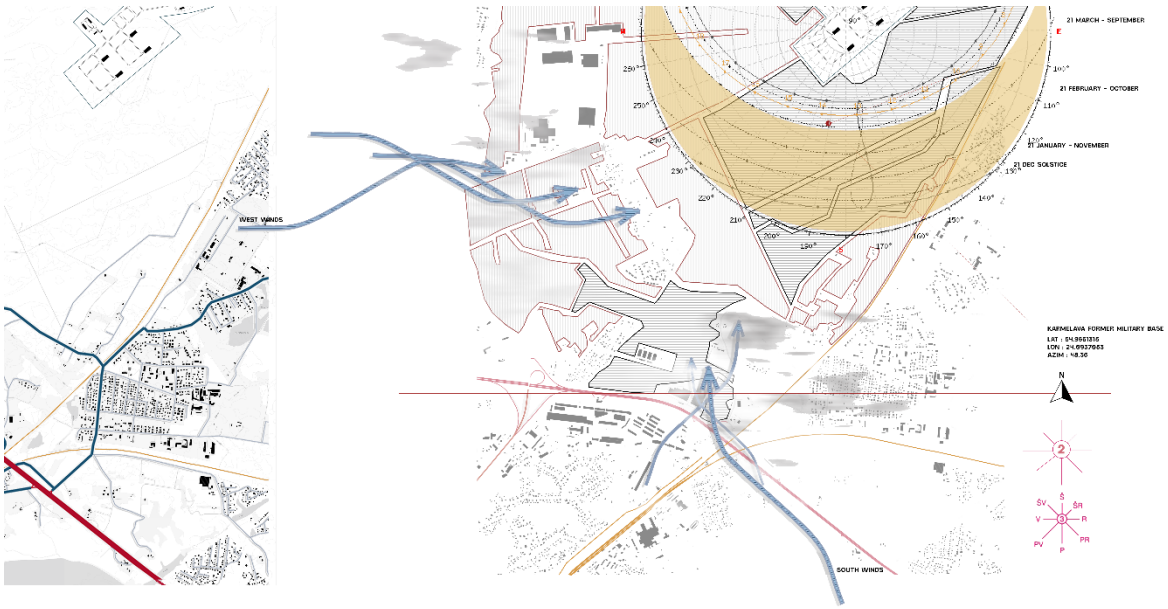






SITE ANALYSIS




21 MARCH - SEPTEMBER
21 FEBRUARY - OCTOBER
21 JANUARY - NOVEMBER
21 DEC SOLSTICE
WEST WINDS
SOUTH WINDS
KARMĖLAVA FORMER MILITARY BASE
LAT : 54.9661816
LON : 24.6937863
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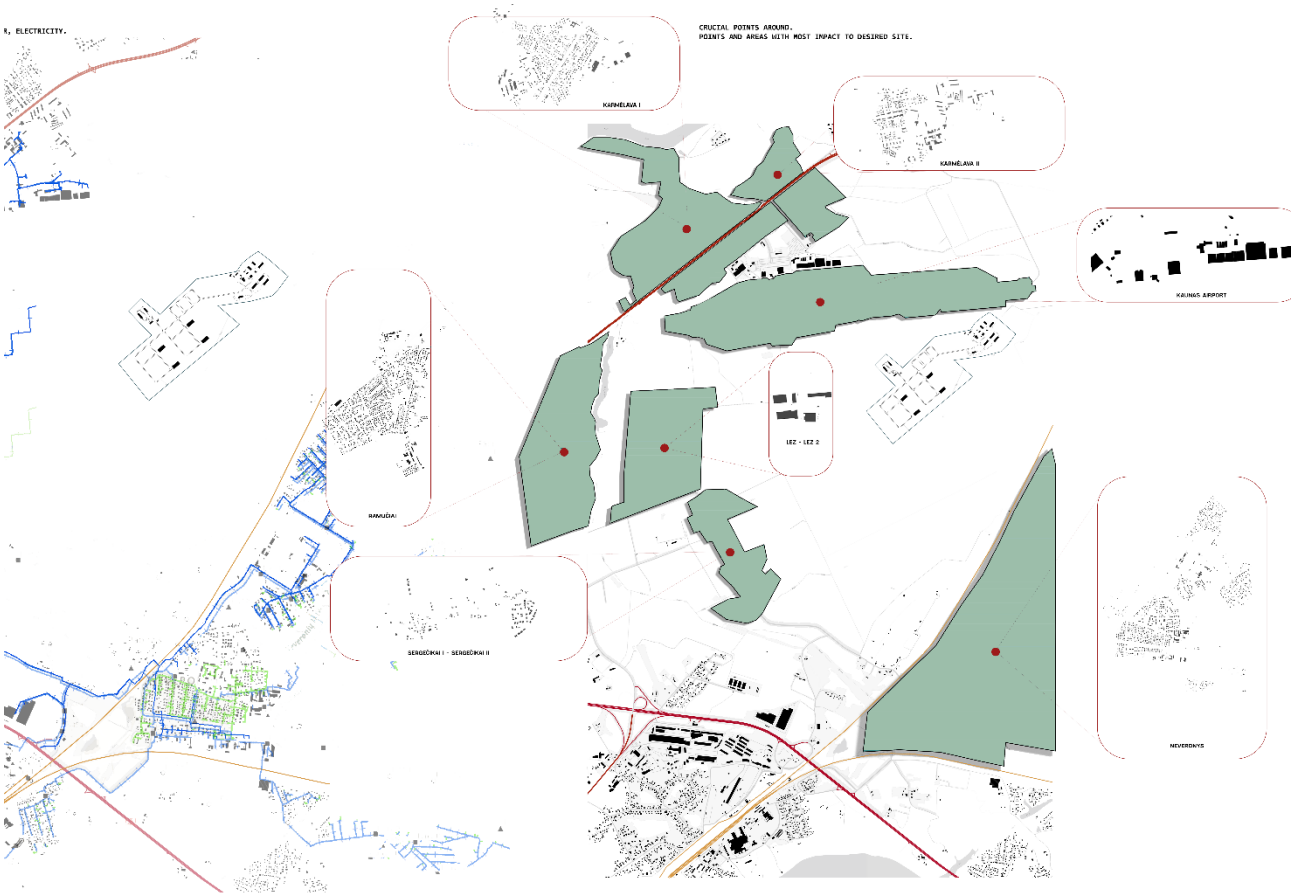
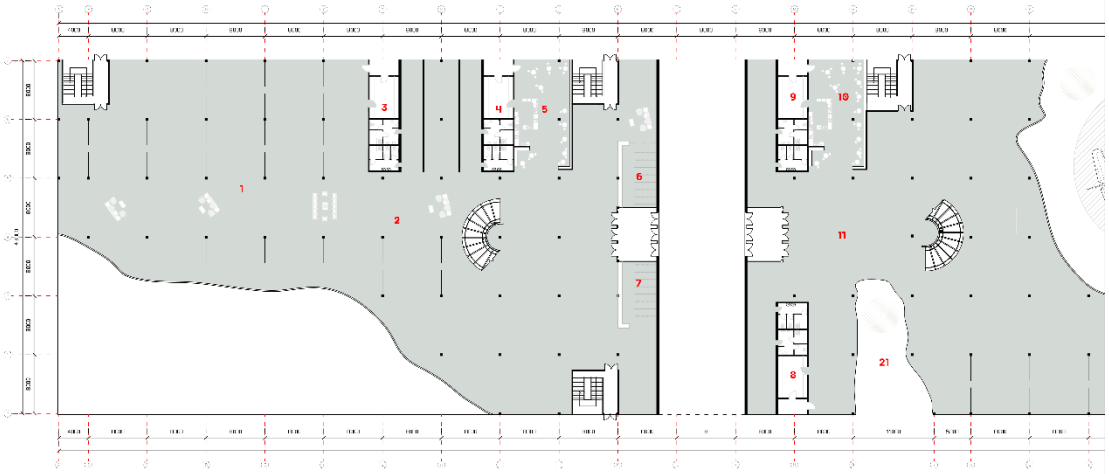

CRUCIAL POINTS AROUND.
POINTS AND AREAS WITH MOST IMPACT TO DESIRED SITE.
KARMĖLAVA I
KARMĖLAVA II
KAUNAS AIRPORT
LEZ - LEZ 2
RAMUČIAI
SERGĖČKAI I - SERGĖČKAI II
NEVERONYS

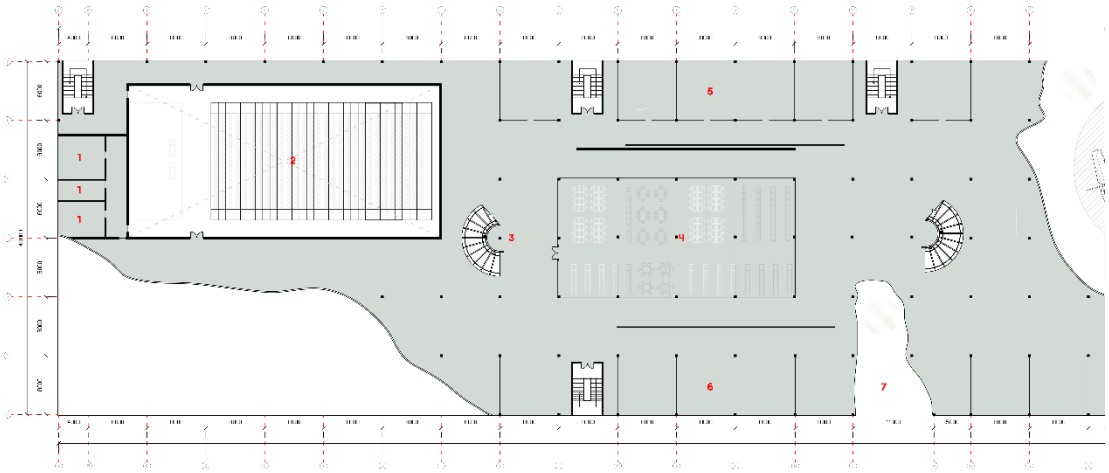
EXPLICATION:

1. MAIN PUBLIC EXPOSITION PLACE.
2. MAIN PUBLIC EXPOSITION PLACE AND LOUNGE.
3. WOMENS RESTROOM.
4. MENS RESTROOM.
5. CAFFEE.
6. CLOACK ROOM.
7. CLOACK ROOM.
8. RESTROOM.
9. RESTROOM.
10. CAFFEE.
11. LOUNGE AND MAIN STAIRCASE.
12. EXPOSITION.
13. OUTSIDE RECREATION ZONE.
14. RESTROOM.
15. INFORMATION CENTER.
16. CAFFEE.
17. EXPOSITION.
18. II OUTSIDE RECREATIONAL ZONE.
19. MENS CHANGING ROOMS.
20. WOMEN CHANGING ROOM.
21. OUTSIDE RECREATIONAL ZONE.



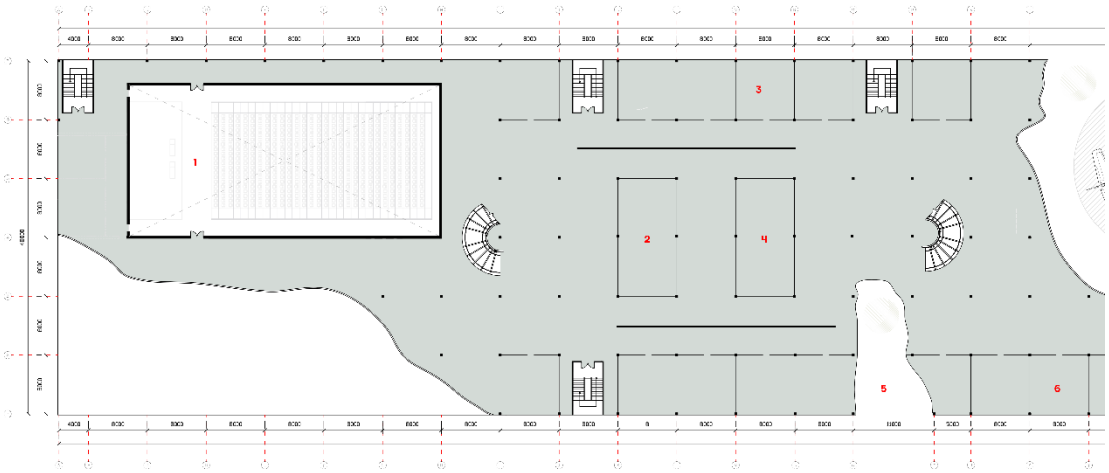
EXPLICATION:

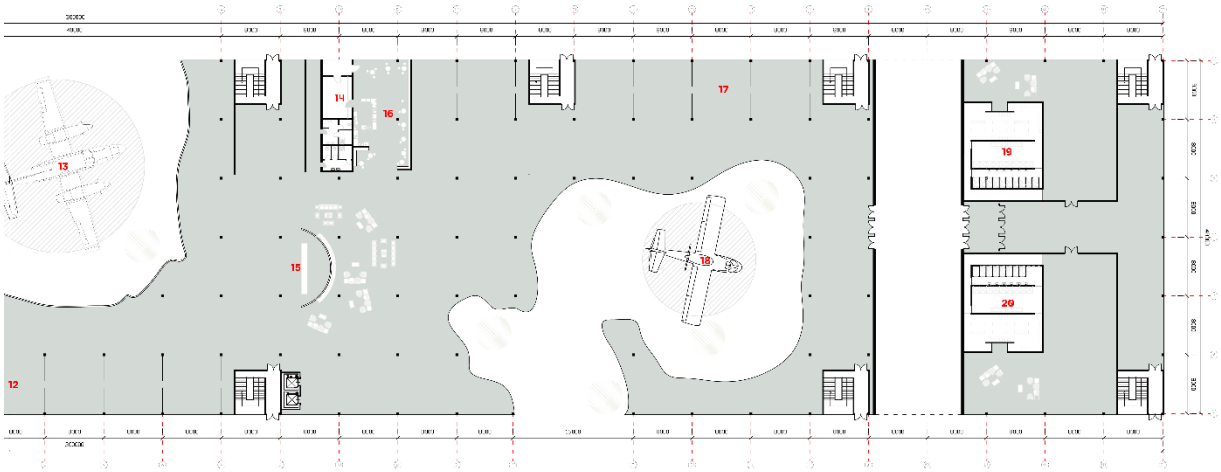
1. TECHNICAL ROOMS.
2. MAIN AUDITORIUM.
3. MAIN STARICASE.
4. OPEN FLOOR LIBRARY.
5. CLASSROOMS - MEETING ROOMS.
6. CLASSROOMS - MEETING ROOMS.
7. OUTSIDE RECREATIONAL AREA.
8. OUTSIDE RECREATIONAL AREA.
9. CLASSROOMS - MEETING ROOMS.
10. CLASSROOMS.
11. MAIN MEETING ROOM.
12. CLASSROOMS - MEETING ROOMS.
13. CLASSROOMS - MEETING ROOMS.
14. OUTSIDE RECREATIONAL AREA.
15. TWO FLOOR HEIGHT FULL SIZE GYM AND COURT.



EXPLICATION:

1. MAIN AUDITORIUM (DOUBLE HEIGHT SPACE)
2. CONTROL ROOM.
3. OFFICES.
4. CONTROL ROOM.
5. OUTSIDE RECREATIONAL ZONE.
6. OFFICES.
7. OUTSIDE RECREATIONAL ZONE.
8. HQ MEETING ROOM.
9. OFFICES - MEETING ROOM.
10. HQ CONTROL ROOM I.
11. OFFICES.
12. OUTSIDE RECREATIONAL ZONE.
13. OFFICES.
14. MAIN CONTROL UNIT.
15. TWO FLOOR HEIGHT FULL SIZE GYM AND COURT.

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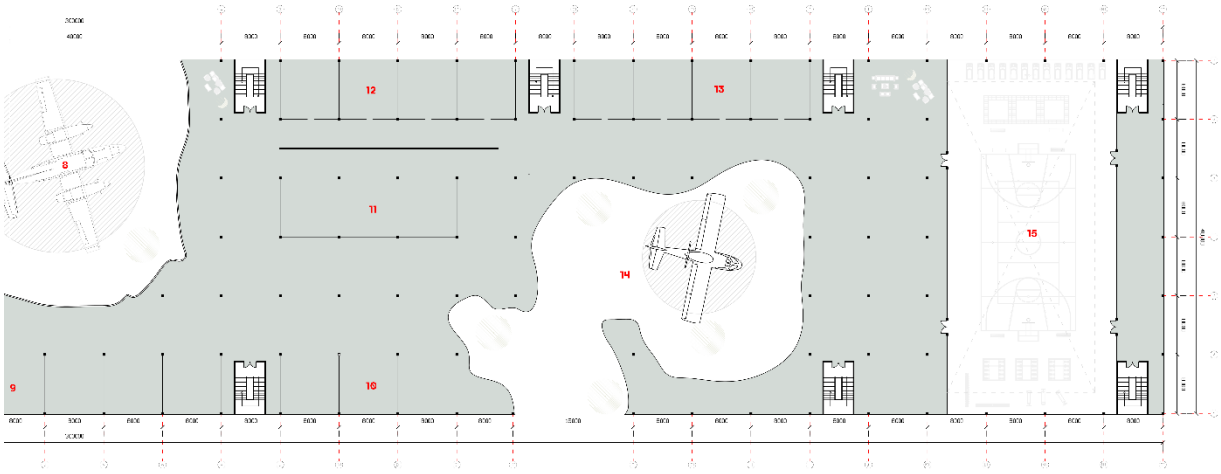
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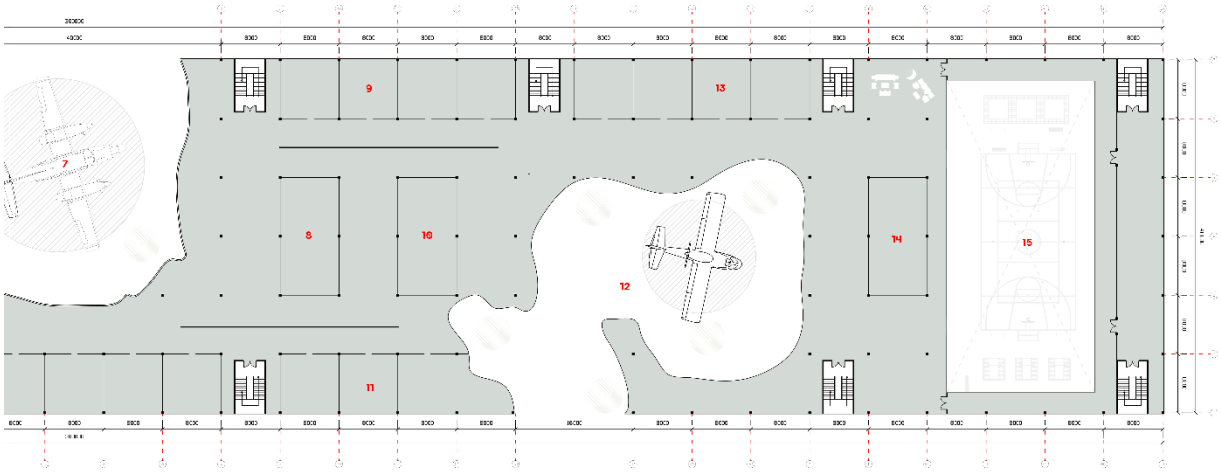
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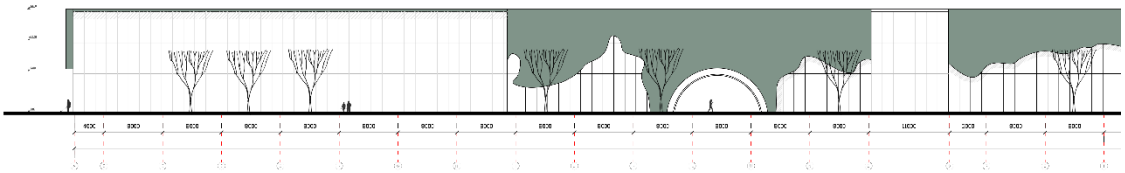
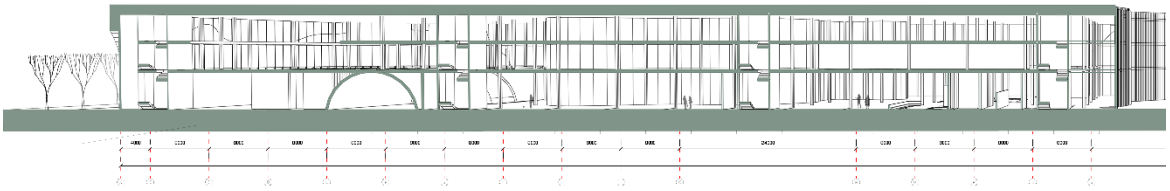
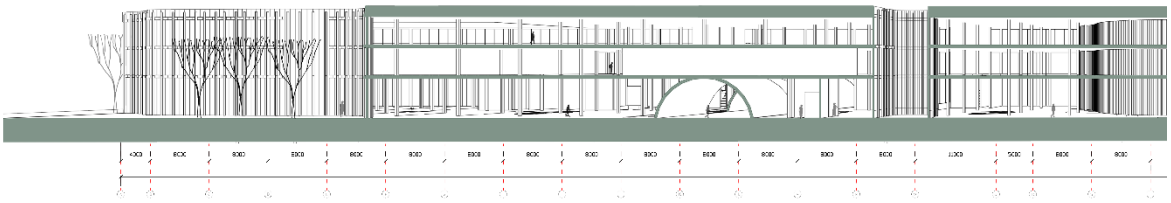
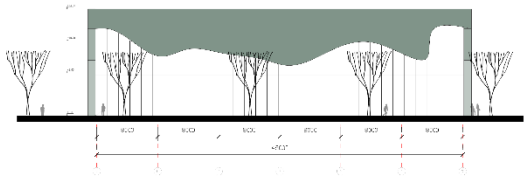
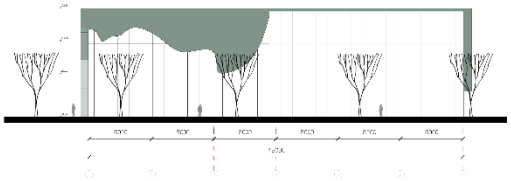
MIRRORED FACADE RESEMBLES CONNECTED PARTS OF

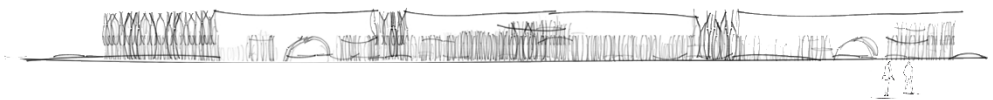


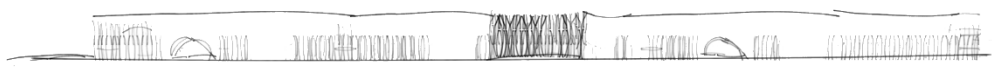




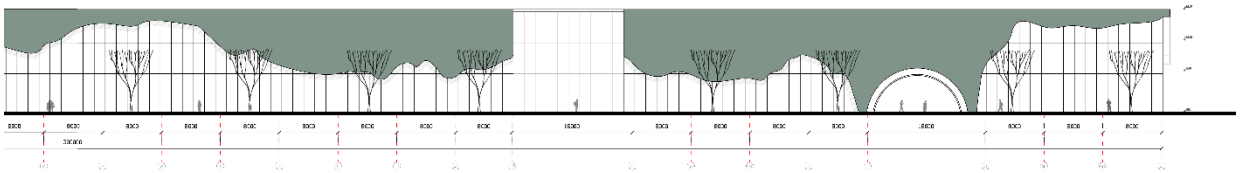


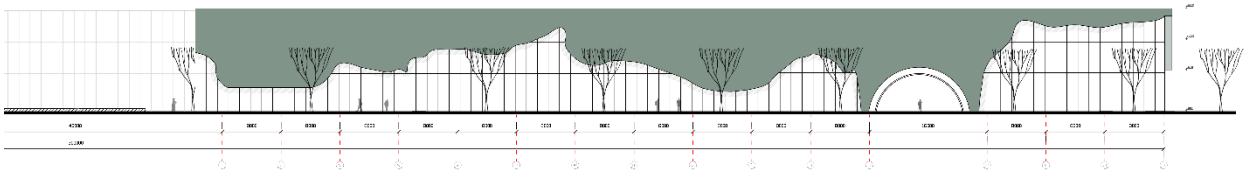


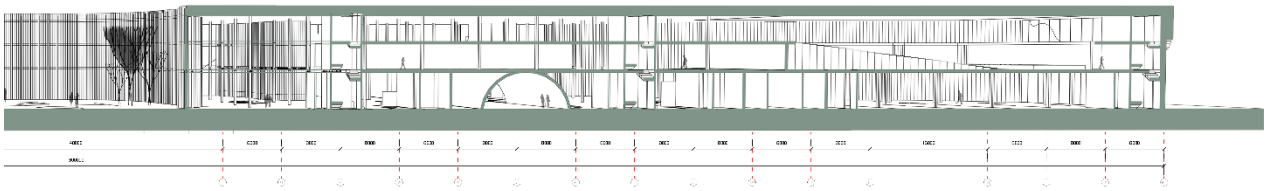


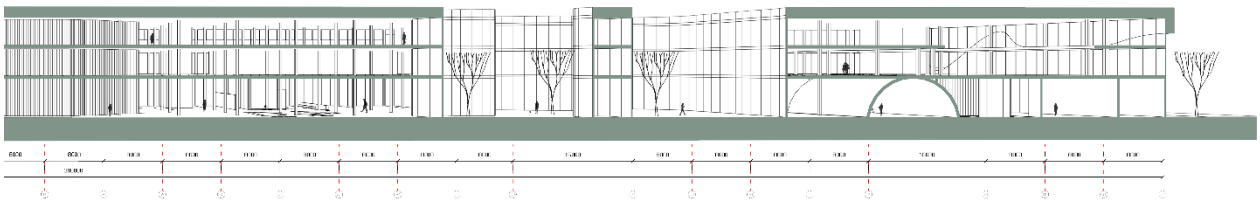


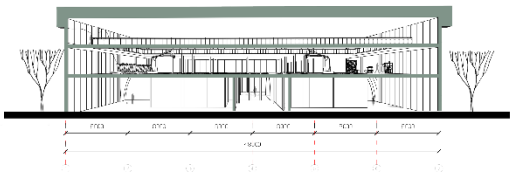
SILHOUETTE THAT WAS GENERATED DURING RESEARCH.









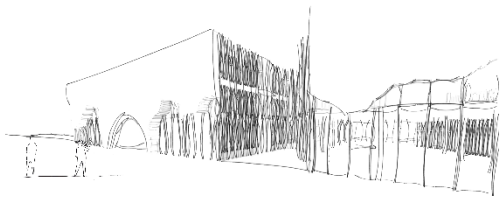


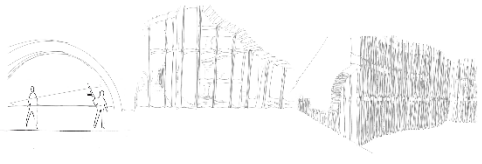
NR. 7

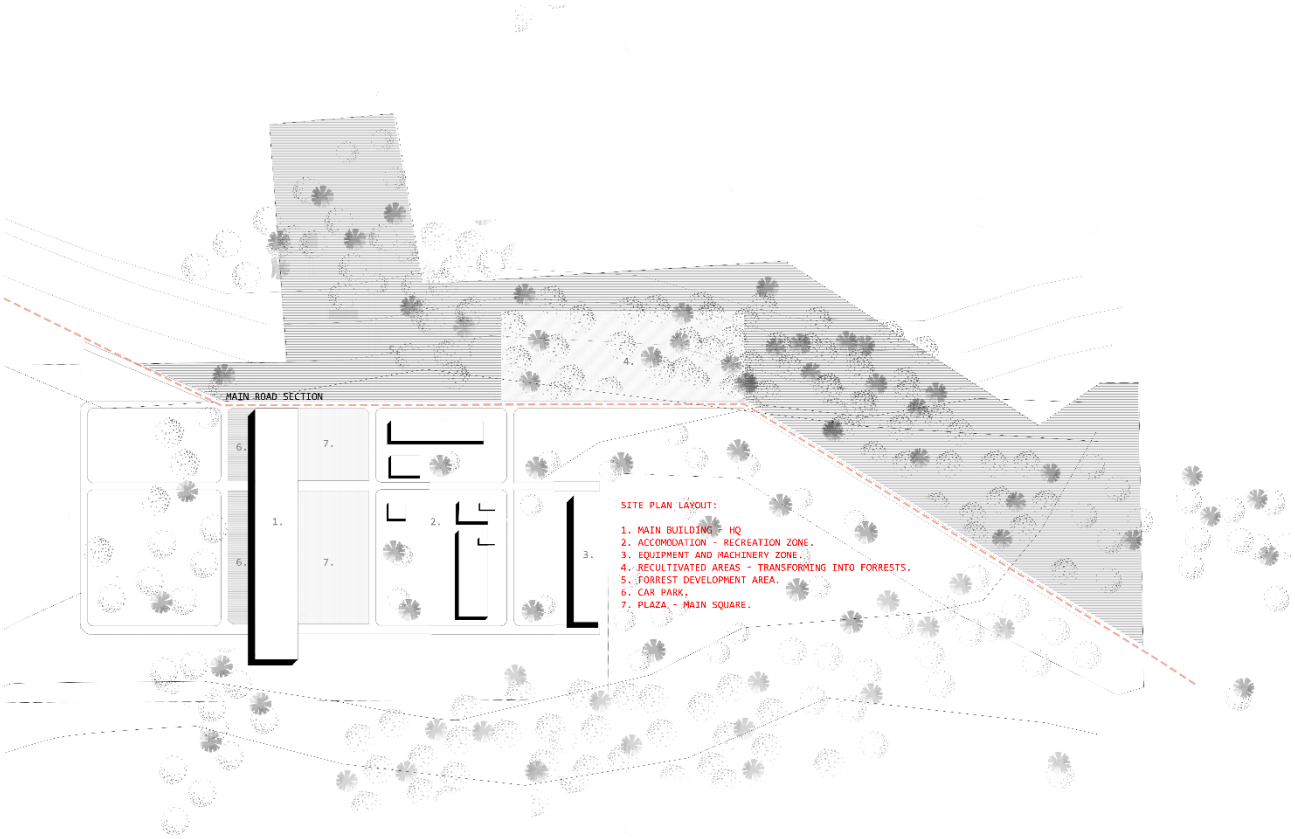
FROM RESEARCH TO RESULTS

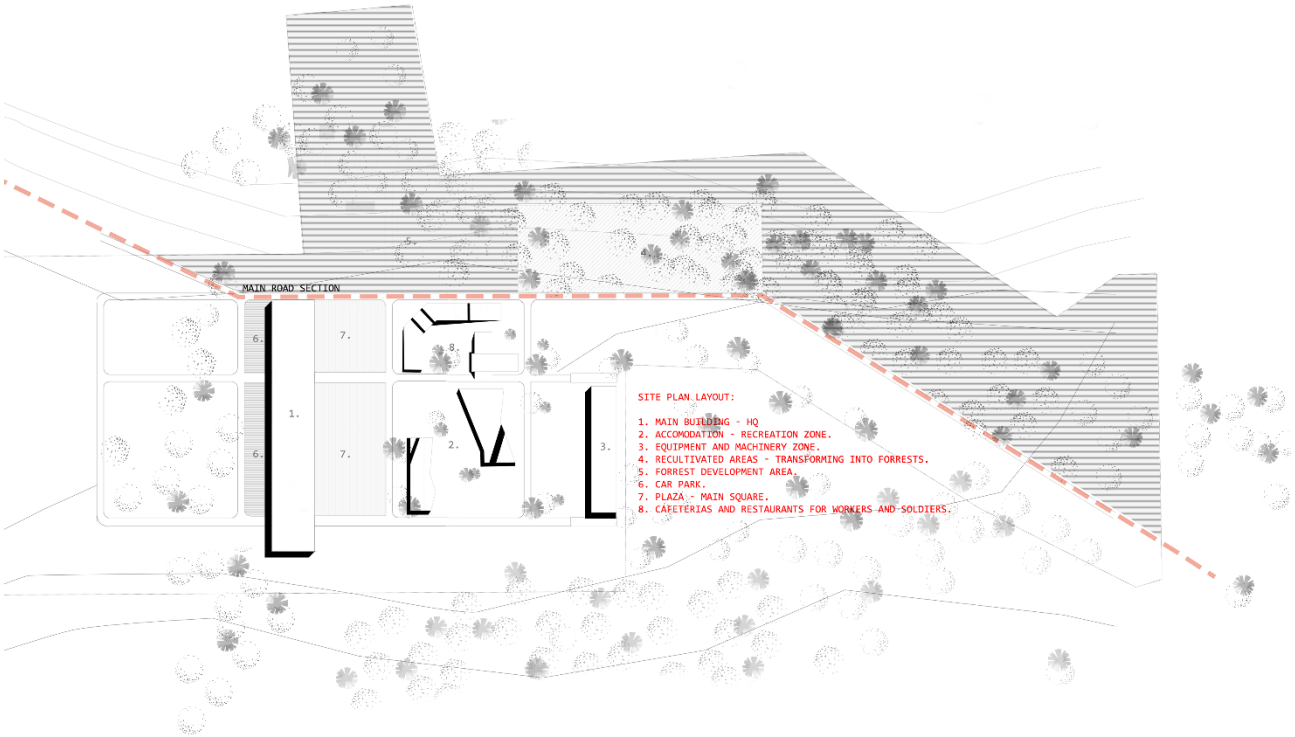
ALL RESEARCH PARTS CONCLUED THAT IT WAS POSSIBLE TO CREATE TERRITORY DEVELOPMENT THROUGH OUT ARCHITECTURAL DEVELOPMENT USING SHAPE MANIPULATION, FORM DEVELOPMENT AND SILHOUETTE GENERATION FOR LANDSCAPE FORMING. EVEN THOUGH IT WAS VISIBLE THAT NOT ALL RESEARCH RESULTS WERE CONCULDED AS VALID, BUT AT THE SAME TIME THEY GAVE A STRONG THEORETICAL AND PRACTICAL GROUND FOR FURTHER SISTEMISATION AND DEVELOPMENT OF FINAL ARCHITECTURAL FORM.

ALL SILHOUETTES FORM ARCHITECTURE AND ALL ARCHITECTURE FORM SILHOUETTES THAT CRATE EMOTIONS AND CONNECTIONS IN SITE.
BY FOLLOWING THIS LOGIC ANY PLACE COULD BE DEVELOPED IN ANY KIND AND WOULD BE FUNCTIONAL.






MAIN ROAD SECTION
1.
2.
3.
4.
6.
7.
SITE PLAN LAYOUT:
1. MAIN BUILDING - HQ
2. ACCOMODATION - RECREATION ZONE.
3. EQUIPMENT AND MACHINERY ZONE.
4. RECULTIVATED AREAS - TRANSFORMING INTO FORRESTS.
5. FORREST DEVELOPMENT AREA.
6. CAR PARK,
7. PLAZA - MAIN SQUARE.


MAIN ROAD SECTION
1.
2.
3.
6.
7.
8.
SITE PLAN LAYOUT:
1. MAIN BUILDING - HQ
2. ACCOMODATION - RECREATION ZONE.
3. EQUIPMENT AND MACHINERY ZONE.
4. RECULTIVATED AREAS - TRANSFORMING INTO FORRESTS.
5. FORREST DEVELOPMENT AREA.
6. CAR PARK.
7. PLAZA - MAIN SQUARE.
8. CAFETERIAS AND RESTAURANTS FOR WORKERS AND SOLDIERS.